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We don't need no introduction!



Team >>

digit



Old Ties, New Hopes



Jasu Shah
Chairman, Jasubhai Digital Media

I first wrote to you two years ago, in the form of a 'Publisher's Page' on the first anniversary of CHIP- the magazine that we all had grown to love.

That first anniversary was a moment of great meaning for us.

The success of CHIP within those first twelve months had validated much of what we held to be dear- focus on product excellence and customer service. This is what I have believed in the thirty-two years since I started my first magazine.

I am writing again to you after two years only because we stand on the edge of something very important.

Our change from CHIP to Digit.

It may be argued that since the team, editorial structure, content, periodicity, price and package all remain the same, then there is really no difference between this new magazine and CHIP.

While this perspective may not be true in its totality, this transition still remains a very important one for us. This is because we have always believed that our true strength lies not in the marketing of any international brand, but in the true, intrinsic product qualities that we ourselves build.

This belief is what gives us the courage to attempt this change.

Most of our confidence stems from your confidence in us.

At this unique moment in our young company's history, I hope and trust that you will give us the same encouragement and strength that you always have.

Looking forward to having you on this journey!

Jasu Shah
Publisher

What do you have to say?

www.thinkdigit.com/feedback

Note: Your opinion could earn you the next 3 Issues Free

Re-evolution!

1100100~1101001~1100111~1101001~1110100



"Digit is another step on the path of evolution that we have embarked upon"

Another day…another bit of news.
Some things change, others stay the same…

We began three years ago with dreams of catalysing an interest in computing in India.

In January 2001, we took on the even more daunting task of spearheading the digital technology revolution in this country.

Driving towards addressing a new computing environment required a redefinition of our focus, a redesigned content package, while continuing our dedication towards the needs of our readers.

Digit is another step on the path of evolution that we have embarked upon.

A name that best reflects the confluence of people and technology that our magazine will be about. A magazine that will be dedicated to achieving the high standards that we will continue to set for ourselves.

We embrace this significant change with a great sense of enthusiasm and confidence, and we hope that you will continue to support us with the same passion that you've shown over the last few years.

Digit will continue to strive to live up to your expectations—with the same focus on quality of content and design that you have come to expect from India's premier technology magazine.

Karan Manral



Assistant Editor
karan_manral@jasubhai.com

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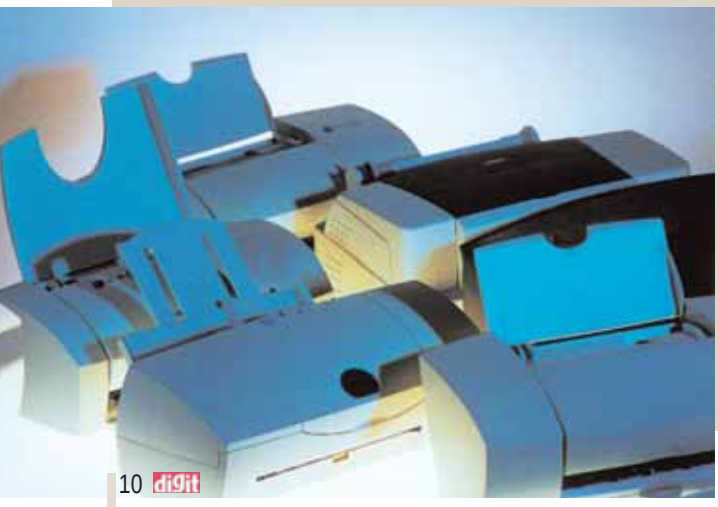
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Mindware

DEVELOPERS: AG WindowWatch (Freeware), Developers Pad (Freeware), Iraje (Trialware), Virtual Pascal (Freeware)

GRAPHICS: iBrowser (Freeware), PaintStudio Lite (Freeware), Shell Picture (Trialware)

HOME: Kool Karaoke (Freeware), MP3Organiser (Freeware), Super CD Cover Maker (Freeware), WordWeb (Freeware)

IN MAGAZINE: AVG Free (Freeware), AntiVir Personal Edition for Windows 9x/Me and NT/2000 (Freeware), NeoWatch (Trialware), Sygate Personal Firewall (Freeware), Zone Alarm (Freeware)

INTERNET: Copernic 2001Basic (Freeware), File-

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digit interactive

ON THE CD

Mindware

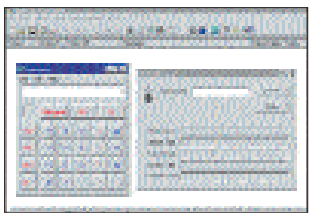
RESOLVE TROUBLESHOOTING
Basic queries and tweaks on registry editing

WORKSHOP
Take a class on 'Connecting dual monitors' using a dual-head monitor card

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SOFTWARE DEVELOPERS
PYTHON V2.1
An easy-to-use programming language with more structure and support for larger programs, more error checking and high level built-in data types

API MONITOR V1.5
A software that monitors and displays API calls made by applications



GRAPHICS
ULEAD PHOTOIMPACT 6.0
Create images for Web pages using various features including vector 2D and 3D graphics, visual page layout and one-click HTML output.

XNVIEW 1.19
This software offers support for 150 different image file formats to view and convert your graphics files

KOOLMOVES V2.05
Create your own Shockwave Flash movies and animated gif frames using this Web animation authoring tool

HOME
PCDJ SILVER PLAYER
A dual deck MP3 player with shuffle and auto play functions



which allows you mix MP3s and match beats song to song with a BPM counter

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portal (Freeware), Netup (Freeware), Vivian mail (Freeware)

OFFICE: BuddyShare (Freeware), Direct Connect Client (Freeware), Encryption Plus Folders (Freeware), Eudora 5.1 (Free/Adware), HTMLGen (Freeware) Perpetual Budget (Shareware)

RESOURCES:Adobe Acrobat Reader (Freeware), Desktop Architect (Freeware) DirectX 8.0a (Freeware), Download Accelerator Plus (Freeware) beta, mIRC 5.9-32 bit (Shareware), PowerArchiver 2001(Freeware), Winamp (Full version) Windows Media Player 7 (Freeware) Yahoo! Messenger (Freeware)

UPDATES:AVG 6.0 Free Edition virus definition (Freeware), Internet Explorer 5.5 (Freeware), Mozilla 0.9 McAfee VirusScan (Freeware), MSN Messenger (Freeware), Windows NetMeeting 3.01 (Freeware)

UTILITIES:CloneCD (Shareware),H_menu 4.0 (Freeware), Macro Angel (Freeware), MBProbe (Freeware), MemViewer (Freeware)

Playware

ARENA: Age of Empires II: Age of Conquerors (Demo), Hard Wood Sii 202(Demo),Hwc Setup (Demo), Monkey Brains (Demo), Sierra (Demo), Stunt GP Demo (Demo),World Cataclysm (Demo)

GALLERY:Wallpapers, Windows Screensavers, Windows Themes, WinAmp Skins

SURGE:Music, Trailers, Mediaware, WinAmp 2.74 Full, Windows Media Player 7

PERSONAL SENTINEL 1.5
A program that monitors your Internet surfing for bugs and also displays the privacy risk level of Web sites

INTERNET

MSN EXPLORER V6.10
Microsoft's integrated desktop idea, a new Web interface, integrated support for music and video, support for up to nine users and more in this Internet service and content solution from MSN

WINMX V2.51
A file sharing program with features such as support for any file type and connections to networks based on Napster and OpenNap protocols

IN MAGAZINE

MCAFEE VIRUS SCAN V5.15
Protect your PC from viruses in files, e-mail and active X controls downloaded from the Internet with this thorough virus protection, detection and removal system

OFFICE

EASYOFFICE FREEWARE
A Word- and Excel-compatible office suite with features such as EasyWord for word processing, EasySpreadsheet for basic and advanced spreadsheets and a lot more

UPDATES

MOZILLA 0.9
All new features such as a new cache, image library, help viewer and greatly improved SSL and MailNews performance.



UTILITIES

SYSTEM MECHANIC V3.6
System maintenance utilities that allow you to tune your Internet connection, find and clean junk and obsolete files, optimise the system registry and manage start-up items among a whole lot of other functions

HEALTH & VISION

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Protecting yourself from various computing related health hazards

IN PRINT

A LIST
Best performing hardware and software products in different categories

PRICEWATCH
Computer component prices for your reference

WINDOWS 2000

Tutorial for end-users *Complete, free course from* CyberMediaOnline

MINDMATTERS

E-BOOKS
E-commerce Handbook, *All about PCs* and more

WHITEPAPERS
A whole lot of whitepapers on new cellular standards

TIPS & TRICKS

Fun things for you to do with easter eggs *Sponsored by* SAMSUNG

Playware

GALLERY

Loads of wallpapers, screensavers, themes, and WinAmp skins for you to spruce up your PC with



ARENA

GAMES

AGE OF EMPIRES II: AGE OF CONQUERORS
Get into the shoes of Attilla the Hun and other legendary warriors with this real time strategy demo

FIFA 2001V3
Improved facial animations, advanced realism, authentic team kits and logos are a few improvements that the latest version of Fifa 2001 boasts of

SURGE

Cool music featuring Avalance, Pentagram and also the best of movie trailers and mediaware.

CONNECT

SITEMAP
Get fashion inputs, model profiles, addresses of boutiques on www.fashionindia.net

INDIA SITES
Indian sites and ISP related news

NEWSLETTERS
Featured this month are newsletters on free graphics sites

BOOKMARKS
Satisfy your thirst for Indian arts and crafts with this month's bookmarks

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EDITORIAL

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Send a complete working copy of the product (not a 'trial' or 'demo' version) to the Digit Test Centre. Only products that are currently available in the Indian market will be considered. The products must have the complete name of the manufacturer or developer, details regarding the name of the model and its type and the end-user price. Product brochure and a complete specification sheet must be included, along with the name of a person to be contacted for information.

DIGIT INTERACTIVE

Contact Ranvijay Singh, Content Co-ordinator, Multimedia *(cdcontent@jasubhai.com)* for inclusion of software on Digit Interactive. A write-up detailing the features of the software, complete loading instructions and a letter certifying that the product is original must accompany the software. The software must also have the complete address, telephone number and e-mail of the developer.

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hypethesis

Simputer

▲What is it?

This is a simple low cost mobile computer that has a 320x240 screen, 32 MB RAM and runs on Linux. Input options include a screen-based keyboard, a graffiti-style software and the Information Markup Language (IML) that is (amongst other things) smart-card aware and XML-based.

▲What's so great about it?

It aims to lower the cost barrier for people who would otherwise never be able to afford access to computers.

▲Who made it?

It is currently under development by the Simputer Trust and will be licensed to manufacturers to produce under their own Simputer GPL. Find them at: www.simputer.org

AMD Going 4 Mobile

Early reports on AMD's latest processor (code-named Palomino) are out. This processor, which has a 37-million transistor core, will be called the Athlon 4 and marks AMD's first serious performance product for mobile computing products.



Athlon 4 will initially come in four speeds: 850 MHz, 900 MHz, 950 MHz and 1 GHz for mobile computers.

According to AMD, Compaq will probably become the first PC manufacturer to offer the Athlon 4, in its Presario notebook.

The mobile version of the Athlon 4 will feature AMD's PowerNow! technology, which allows the processor to dynamically change its clock speed and operating voltage depending on the applications and demands on the CPU. The 1 GHz Athlon 4 will make use of the PowerNow! technology to scale from 500 MHz to 1 GHz and run at voltages of 1.2 V to 1.4 V.

This technolgy is AMD's answer to Intel's SpeedStep technology, which made the Pentium III processors extremely popular with laptop and notebook manufacturers.

Also being launched is the mobile Duron, which is based on the Morgan core. This will constitute AMD's value solution for mobile computers. The desktop version of the Athlon 4 is expected go up against the Pentium 4 sometime later this year.

Beat the Heat, Digitally!

Carrier, a provider of heating, ventilating and refrigeration systems, has struck a deal with IBM to install Java-enabled chips into Carrier air-conditioners, which will enable the owners to remotely set the temperature and switch on or off the cooling devices. IBM will service the chip and software within the unit.

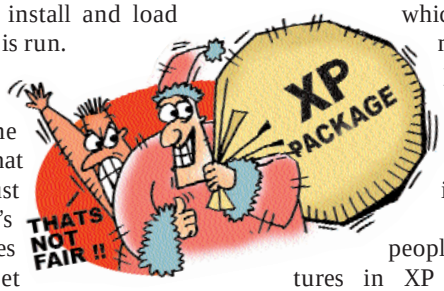
The system is designed with the embedded Java serving up the site to any mobile or desktop device via GSM mobile wireless networks. So if you're a Carrier AC owner, you can access the company's site, Myappliance.com, and pay a fee to check your unit on the Web.

Alternatively, fault codes and diagnostic alerts can be sent directly from the AC to the service technicians via e-mail or fax; they can check your unit on the Web site and tell you what the problem is.

Microsoft XP: Building another monopoly?

Is XP the latest bully on the block? It doesn't seem so at first glance. Microsoft's upcoming operating system will provide users with an Internet chat program, a new security program, a DVD player and software to burn personal CDs. MSN Messenger will install and load automatically every time XP is run.

But this has led to complaints alleging that Microsoft is using the same product-bundling strategy that had given rise to the antitrust case involving the company's anti-competitive practices such as bundling the Internet Explorer browser with the Windows 98 OS.



Microsoft counters that it is simply trying to improve its product with new features that consumers demand, and that its rivals are trying to do the same thing: expand into new markets.

Companies like Symantec and RealNetworks, which make software that might be affected by this product bundling, claim that the new Microsoft applications are rudimentary and not the best in their categories.

Microsoft's view is that if people don't find the new features in XP compelling enough to upgrade, they can choose not to.

SNAPSHOT

The first computer bug discovered by Admiral Grace Hopper, was a moth caught in the computer relay switch, causing errors!

Damage worth millions of pounds caused as more than 12,000 Dell computers affected by the Funlove virus

Source: *Data Fellows, www.cs.yale.edu*

◆ Red Hat Linux chucks Netscape for Mozilla browser ◆ IBM to make supercomputers ◆ AMD introduces new powerful mobile

quicktake

Ken Constable, Vice President, Dell Asia Pacific

Dell Computer has entered the Indian market. Dell's speciality lies in directly delivering custom-built PCs to specific customer orders.

▲ What type of business is Dell looking at in India?

The policy of Dell worldwide is to go direct—the secret of Dell's success. We are currently looking at the SME market, which is a bigger chunk of the pie. Two products are being launched in the desktop segment and two products in the laptop segment. We sell directly to the people through our Web site www.dell.co.in or through our toll free number 1600-33-8046. Our sales representative will provide assistance in selecting a product keeping the price factor in mind. In the direct model, the latest technology is available to the customer so there is an investment protection. If a new technology is announced from Intel today, just give us a call. We will make sure that the technology is available to you today. This also reduces costs.



Ken Constable
VICE PRESIDENT
Dell Asia Pacific

▲ What advantages do Dell machines have over assembled PCs?

All Dell machines are built in the Dell factory. No one outside the factory can tamper with it. Our design is unique. You can open the machine and take out the components without a screwdriver. In laptops there are special stress points designed to protect the internal components. The PCs have a single button with an 'e' written on it that provides online help.

Vengeance gone wrong

The first person to be charged for cyber crime in the country, is the 16-year old son of a retired Indian Air Force officer, who was arrested by the New Delhi police for creating a porn site featuring the classmates and teachers who made fun of him at school.

Constantly teased in school, this Standard XII student quietly found a way to hit back. He created a pornographic site Amazing-gents.8m.net (taken down now) that ran a warning that 'girls should enter at their own risk'.

His plan backfired when a girl in class complained to her father about her being featured in the malicious Web site. The boy has been sentenced by a juvenile court to 14 days' judicial custody at a juvenile remand home in Delhi. Clearly not the best of ways to take revenge.

Nokia playing with Linux consoles

Nokia has announced its plans to introduce a Linux-based home entertainment console. The Media Terminal will be able to function as a video game player, MP3 digital music player, Web browser, digital TV recorder and digital TV set-top box. It will compete with Sony's Playstation and Microsoft's Xbox in what's becoming an increasingly crowded space.



The development platform for the games on this device will probably be the popular platform-independent OpenGL system. This would also give Nokia access to a large existing base of gaming software titles and game development expertise.

Rickard Nelger, head of the Nokia Home Communications group, says that they have made the hardware an open design so anyone else can make a clone or compatible product. This makes it look like Nokia plans on using the Open Source approach for both the hardware (x86 architecture) and the software on this device. Whether this is a viable solution, only time will tell.

The company plans to release the device in Europe this summer and in the US late this year or in early 2002.

Visit www.nokia.com/multimedia/mediaterminal.html for more information and pictures.

Redalert

VBS.VBSWG2.Z@mm

This is an encrypted VBScript worm that sends itself to all recipients in your Microsoft Outlook address book. Rated as 4 (severe) by Symantec, it arrives as an attachment, with the subject as Mawanella and the message, 'Mawanella is one of the Sri Lanka's Muslim Village'. If no Microsoft Outlook application is installed, the worm displays the message 'Please Forward this to everyone'. The worm creates a copy of itself, called mawanella.vbs, in the Windows\system folder. To remove this worm using Norton Antivirus (NAV), run LiveUpdate to get the most recent virus definitions. Start NAV and run a full system scan, making sure that NAV is set to scan all files. Delete any files detected as VBS.VBSWG2.Z@mm.

Sub 7 2.2 Beta

First discovered in December 1999, this Trojan has been consistently updated by the author. With each revision, updates, are added to the DAT files. Sub 7 2.2 beta offers the usual access to the user's data via the Internet. By default, the Trojan uses TCP port 27374. It is normally distributed as a Win32 PE exe dropper that may be disguised as a JPG or BMP picture. When run, this dropper installs two files into the Windows folder: the main server exe files, normally called msrexe.exe, and a loader program normally called run.exe, windos.exe or mueexe.exe. Do a full scan of the system with McAfee or NAV and follow the instructions to remove the file.

chips in competition with IBM ◆ Intel challenges Sun with telecommunications server ◆ AOL and CompUSA announce alliance

realitybites

"The industry doesn't have a pricing problem—it has an operating expense problem"



Michael Dell, CEO Dell Computers, while predicting a drop in revenue.

The bottom line—what we really need is more customers to pay for it!

"If we're not able to quickly resolve these issues, it will be necessary for Congress and the (United States) Copyright Office to step in."



Rob Glaser, RealNetworks CEO, speaking about the resemblance between their MusicNet subscription service and Napster

Heck, if we're lucky we could get a patent or two out of this

"I do not question the right of the Open Source software model to compete in the marketplace…companies and individuals should be able to choose either model."



Craig Mundie, of Microsoft referring to his earlier speech criticising the Open Source model

And there's going to be trouble if you pick Open Source

MIT Promotes Open Course

It's a natural marriage of American higher education and the capabilities of the World Wide Web, said MIT President Charles Vest, announcing that the Massachusetts Institute of Technology (MIT) will make the materials for nearly all its courses freely available on the Internet over the next 10 years.

Located in Cambridge, Massachusetts, MIT is a private research university with more than 900 faculty and roughly 10,000 undergraduate and graduate students.

Roughly 2,000 courses will be offered for free via MIT's new OpenCourseWare program. The initiative is estimated to take the best part of a decade and is projected to cost in the region of $100 million.

It would involve incorporating lecture notes, syllabi, exams, simulations and streaming video lectures for nearly all of the research university's 2,000 courses. It will begin with a two-year pilot program involving a combination of professional staff and teaching assistants who will put materials for more than 500 courses on the Web.

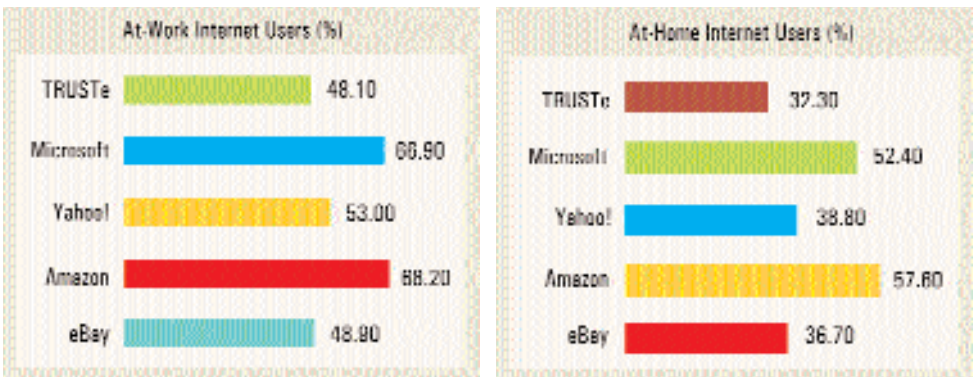
Of course, students who do the course on the Web will not receive a degree, which is reserved only for the on-campus students who enroll at MIT with $26,000 as annual tuition fee.

OpenCourseWare would work more in terms of teaching and training young students and faculty in developing countries where information and the development of infrastructure and institutions are sorely needed.

thumbnail

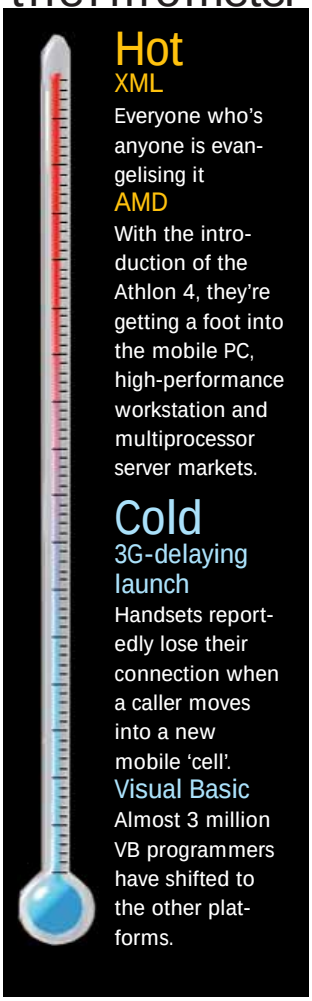
PATTERN OF INTERNET USAGE

User statistics show the popularity of certain Web sites based on the percentage of users accessing these sites from home as well as the workplace.



Source: cyberatlas.internet.com

thermometer



Hot

XML

Everyone who's anyone is evangelising it

AMD

With the introduction of the Athlon 4, they're getting a foot into the mobile PC, high-performance workstation and multiprocessor server markets.

Cold

3G-delaying launch

Handsets reportedly lose their connection when a caller moves into a new mobile 'cell'.

Visual Basic

Almost 3 million VB programmers have shifted to the other platforms.

➜

◆ MS monopoly anticipated with launch of Windows XP in October ◆ 'Cheeseworm' repairs broken Linux systems ◆ XBox video

Phone-y videos

As if there weren't enough things to do on the mobile phone already! Along with the usual phoning, e-mail checking, Web-browsing and SMS sending, get ready to transfer and receive film-quality photo and video images along with your calls.

Sarnoff, a privately held unit of SRI International (formerly, the Stanford Research Institute), has designed a low-power, 1.2x1 inch BLINC digital camera that can enable mobile phone users to exchange high-resolution photos and video images over their cell phones.

Japan's NTT DoCoMo, a world leader in advanced mobile phone systems, is already offering low-quality video via its popular iMode service. It plans to launch its third generation mobile systems this quarter, which promise to deliver broadcast quality video via phones.

With these initiatives in place, mobile phone users worldwide are expected to switch over to using broadcast-quality video networks, ushering a new era of mass market video-making.

Metrics

10,00,000

people will be employed in IT services

The IT-enabled services industry will grow to

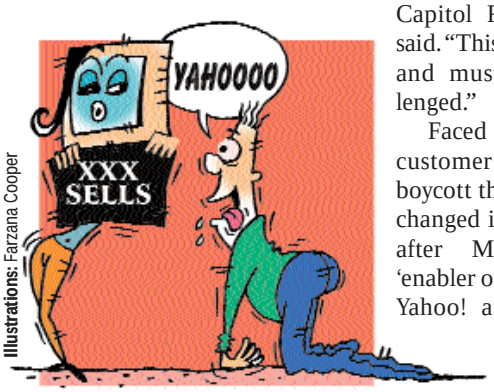
$17 billion

Source: Nasscom estimates for 2008

Yahoo! changes its mind in hurry

Never underestimate the power of your audience. Especially if the innocence of their children is at stake. Web portal Yahoo! learnt this the hard way.

Under pressure to develop new sources of revenue, Yahoo! succumbed to offering a broad selection of adult material, including porn videos and DVDs, through its popular shopping service.



Illustrations: Farzana Cooper

"We're hard and fast on being the largest enabler of commerce on the Web," said Jeff Mallett, Yahoo!'s president and chief executive officer. "We have chosen to offer adult-oriented content as part of that," he added.

But parents visiting the popular portal would have none of it. "The very real danger is that our children will have the very real possibility to be exposed to pornographic material," a statement from the California-based Capitol Resource Institute said. "This is not appropriate and must not go unchallenged."

Faced with a barrage of customer complaints and boycott threats, Yahoo! soon changed its tunes. Two days after Mallett took the 'enabler of commerce' stand, Yahoo! announced that it would no longer sell adult-related products in its Web site's shopping, auctions and classifieds areas.

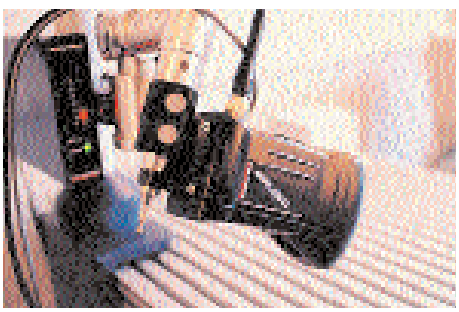
Moral of the story: Don't mess with parents.

tomorrowstechnology

ModelMaker 3D Scanners

The ModelMaker, a handheld laser scanning system, enables users to capture 3D and colour data from complex 3D models. This is useful for animation, virtual reality and product styling applications.

It uses laser stripe triangulation technique to scan real-life images. A thin red line of laser light scans the surface of the object, following the surface profile of the object. Images trapped by the CCD sensors are used for simultaneous and precise measurement of multiple points.



The initial challenges lay in capturing the different positions of the object and merging together the scans collected from different angles at a good speed.

Whois?

GRUB IT

▲ *What is it?*

It is a real-time open source software free for downloading from www.grub.org.

▲ *What does it do?*

This distributed crawling client creates an infrastructure providing constant URL update status information for almost all Web pages on the Internet.

▲ *What does it offer?*

The distributed crawler network used with GRUB can enable Web sites, content providers and individuals to notify others when changes occur in the content. No wonder, it's your real-time search engine! The database is accessed by GRUB users via XML feed that enables them to make changes on their Web pages and update the database accordingly.

game console launching in November ◆ DigitalTV makes its approach ◆ New subscription service launched by Napster

I DIG IT!

Wow! You guys are really bold. You guys really amaze me. Every now and then you try new things that attempt at changing the world. Keep it up!
With best wishes.
S.Prashanth, *Via e-mail*

I was a little upset to know about the change in the name but after going through the details on the Web site, I am very happy to welcome Digit to my family. Now we expect a lot more.
Srinath Thakari, *Via Web site*

I have been reading CHIP since the very first issue (April 1998). It's so good that I still read it although I am now a hardcore software professional. The new name and look suit the best computer magazine in India.
Sajid Hossain,*Via Web site*

I have been reading CHIP right from the first edition and I have seen the improvements. I am sure that you will continue to deliver the same kind of quality content in the future.
Sagar, *Via Web site*

The change of name to Digit came to me as a surprise, but reading that the contents and quality of the articles will remain the same reassured me. I hope the same is true for the CD. I loved CHIP India and will love Digit too. After all, what's in a name?
Pankaj Nagar, *Via Web site*

First of all, let me commend you on the excellent choice of name—Digit. Cool, short and snappy. Sounds just sophisticated enough to make it seem young and at the same time not a new kid on the block.
Dhruv,*Via Web site*
P.S. I hope your first magazine cover is kick-ass and mind blowing.

Dear CHIP…er…Digit,
When I saw your advertisement stating that CHIP is being discontinued, I was heart broken because it was the only magazine that was just right.
Then I learnt about Digit. It's about time you came up with a better name!
Sushir, *Via Web site*

Man, this rocks. Same stuff + new stuff = Digit!
Aditya Pandya, *Via Web site*

CHIP was a trendsetter that captured the hearts and imagination of everyone. Discontinuing CHIP is a shock, but after going through the publisher's note, I am reassured. Let's hope that Digit will exceed the high mark set by CHIP.
Mihir, *Via Web site*

Dear Sir,
When I saw the ad in *The Times of India* I was quite surprised to learn of Digit. Nevertheless, the name CHIP shall always remain in our hearts. We breathlessly await the new digital experience.
Z. Sheery Joshua, Via e-mail

Over the past couple of weeks since we announced the launch of Digit we have received an incredible amount of feedback from our readers—via e-mail, telephone calls and most of all, our Web site. Some have enthusiastically embraced the new magazine and others just want the old one back.

This is a pretty accurate reflection of the way we ourselves feel about the launch of Digit.

Each of us, whether it was those who joined up to be a part of all that CHIP came to mean to us as readers, or others who have made producing this magazine their mission, will look upon the past few years with more than a little nostalgia.

However, Digit is a name that best reflects the convergence of people and technology that our magazine is about. We look forward to this change with a great sense of enthusiasm, and hope that you, our readers will support us in our mission, which is to create India's premier technology magazine.



Web awards ditched?

What will happen to the CHIP-Dishnet Web Awards? This was one of the foremost Web awards that all Net fanatics were looking out for—a kind of Filmfare awards for the Netizens. Are you still planning to go ahead with it? If so, when?
SANDEEP,
Via Web site

digit
Yes, we are still planning to go ahead with the Web Awards in 2001. You will be able to see information about the Awards up on our Web site in the near future.

Better or worse?

First Gourav left, and now the change in the name of CHIP. What do you want to change next (for better or for worse)? Is Digit really a step ahead of CHIP or is it the same old business strategy to gain attention?
ARNAB MITRA AND SUMIT
Via Web site

digit
A strategy to gain attention? Not really. We think we already had yours. 'Digit' seems to better reflect the spirit of the magazine.
PS: May be the two hardware and three software comparison tests in this issue are a more acceptable change.

Cite the site

Does Digit have a new Web site of its own?
SUNDAR AND ABHIJI
Via Web site

digit
Yes, you can now visit our new Web site for Digit at www.thinkdigit.com

Yeh con hai!

The actual truth is that CHIP will be republished in India, and will be in the market soon. Digit is just a con game!

ANIRUDDHA AND SARANSH
Via Web site

digit

The fact is that we created all the content here for Indian audiences. Digit is here. Right now!

Why now?

I don't understand your rationale in basically using a brand name and then dumping it. Why didn't you start with your own setup at the time of the magazine launch in April 1998? It's sheer nonsense to say that you were doing everything and they (the German group) are useless.

SUNIL KUMAR
Via Web site

digit

When CHIP started out in 1998 we quickly realised that for the magazine to fulfill the needs of its readers, we had to provide content that was relevant to our Indian audiences. A large part of the popularity of the magazine over the last three years could be attributed to this decision.

Extending this further, since January we have a magazine that has moved from being restricted to only computing, to one that covers the larger realm of digital technology. The name 'Digit' seems to be better suited to this new product.

Also, at no point have we referred to our relationship with Vogel as 'useless'. The changes are simply a reflection of the differences that exist between our objectives today and our ideas on what content is suitable.

DIGIT WHO?

Somehow, I am not happy with Digit. CHIP sounded better and I will miss it big time.
A Shetty, Sriram, *Via Web site*

CHIP is the best computer magazine in the market. Please do not stop it
Antonia Paes, *Via Web site*

I don't understand what is happening to my CHIP. I feel like a mother who has lost her child.
Tadikonda Srinath, *Via Web site*

What's the logic behind this name change when it already sounds so good and is so popular? This is really a shock. Come on guys it's more than just a name to most people. Me included.
Prasanth, *Via Web site*

I personally feel that there was no need to create this confusion. Continuing the name CHIP would have been better.
Guru Murthy, *Via Web site*

'What's in a name?', you may ask? Call it brand loyalty or anything else, I personally prefer CHIP. It was a part of a global IT information revolution that spread across several countries through all continents. Somehow the name Digit doesn't seem to carry the same charm. I would like to see CHIP again. Or maybe even CHIP v2.0.
Arnab Mitra, *Via e-mail*

I know things change as life goes on and CHIP also had to change, as it was no longer associated with Vogel. But fond memories die hard. The memories of being a part of the CHIP revolution (as a reader of course) will remain.
Riyaz, *Via Web site*

You've lost it

I am a Congolese doctor based in Nigeria with a keen interest in your magazine. However, I was used more to the earlier CHIP magazine with its concepts, philosophy and structure. Now, with Digit, won't there be a conflict with the American magazine, and won't the previous philosophy get lost?

DAMIEN KAPANGA
Via Web site

digit

CHIP as it was published in India was quite distinct from any other edition elsewhere. If you have been reading it for the last few months you will find that the same editorial philosophy, concepts and structure remain.

Mera wala Digit?

You offered a three-year subscription for Rs 1,450 when CHIP was first launched. I was one of the early subscribers. Can new subscribers of Digit expect such offers? Also, are you going to continue giving two CDs with this new magazine? What will be the price?

SANKAR, NIVID
Via Web site

digit

We do have a completely new subscription offer. Look for it inside this issue of Digit. Your issue of Digit will come with two CDs and will be available to newsstand buyers for Rs 100

Goof Ups

Notice any goof-ups? Write to goof@jasubhai.com

Send your letters marked 'Readers Letters' to the Digit office:
D-222/2, MIDC, TTC Industrial Estate,
Om Sagar Building, Nerul,
Navi Mumbai 400 706
Phone: 022-7629191/9200;
Fax: 022-7629224
E-mail:
readersletters@jasubhai.com

TOP of the Charts

The spotlight this month focuses on Pentagram, the first Indian band to top the MP3.com Asia charts

JULIAN VONGEYER AND ANIL PATRICK R.

Pentagram isn't just another Indian rock band. It stands head and shoulders above other Indian rock hopefuls, and one reason for this is that the band members have always done a lot of experimenting with their music and sound. Their most recent achievement has been to bag the top spot in the MP3.com Asia charts.

"We decided to focus on the Internet and the computer generation, who are very important for us"

The band believes that the Internet has a really wide reach as a medium, and MP3.com has served them well in meeting their objective of reaching out to a wider audience rather than just rock enthusiasts. Barely a week after they were uploaded onto the site, all five songs, which were previewed under various genres such as Drum and Bass, Electronica, etc, reached the number one slot in their respective categories. This achievement has made Pentagram the first Indian band to top the MP3.com Asia charts.

Pentagram comprises five members—Shiraz on drums, Vishal on vocals, Clyde on effects, Papal on bass and Randolf on guitar. Shiraz, Clyde and Vishal started the band in 1993, and were joined by the other two in 1994.



Pentagram: Papal (bass), Vishal (vocals), Shiraz (drums), Randolf (guitar), Clyde (effects)

They shifted from traditional rock towards progressive alternative pop and electronica in an effort to improve themselves and break the barriers of traditional rock music. The group uses minimal gear to record their songs—a couple of samplers (one an Akai and the other an SP808), guitars, keyboards and drums.

Pentagram first tasted success with wins in three big competitions, the most prominent being Livewire. This was followed by a record deal with Plus Music leading to the release of the album, *We're Not Listening* in 1996, which became the fastest selling Indian rock album. The band followed this up with two music videos called *The Ignorant One* and *Yoo*, which got good exposure on music channels. MTV's Artist of the Month and the Channel V award for Best Live Band were the next two honours conferred upon the band.

In 1999, Pentagram got involved in a bit of controversy. Their single, *The Price of Bullets* which also featured Javed Akhtar and Shankar Mahadevan, was refused airplay by the music channels. The track was based on the Kargil war, and the video was considered too violent and graphic to be aired. Not to be deterred, the band put the tracks up on the Internet, which led to it being featured in *Rolling Stones* magazine.

Topping the MP3.com Asia charts has now focused even more attention on the group, with a lot of publicity from the media and a number of offers including one from a Russian band that sent them a couple of songs to remix.

"We have decided to focus on the Internet and the computer generation who are a very important aspect for us right now and for the future," says Randolf. The band members also feel that putting up songs on free sites such as MP3.com makes for a good business strategy as it arouses public interest in the album. However, what's more important to the band than being number one on the charts is the number of people that are logging on to the site to listen to the tracks—an average of 50 people a day. And, of course, being the first Indian band to achieve this only adds to the jubilation. "Being the first Indian band to top the charts felt good. Being number one in all of Asia is a good thing."

However, the band members insist that topping the MP3.com Asia charts wasn't all that big a deal. "By 1998 and 1999 we were pretty well known in the country and this has just gotten us into the news again. We had done cassettes and CDs and we just thought that it was time to get some music flowing on the Internet as well, which is why topping the MP3 Asia charts is nice but not such a big thing for us as it is for the fans and people who like our music."

Do we need 'Big Brother' watching us?

Should corporates monitor employees' Net usage? Anil Patrick R. speaks with representatives of Bharat Petroleum and Dishnet DSL on whether it violates the individual's right to privacy

Monitoring employees' Internet usage should be enforced by every organisation. This is highly beneficial for smooth operations. If an organisation is providing Internet access to employees, it is solely for work purposes. If an employee uses the Net for personal reasons, it is a waste of available resources.

Anil Kumar Kaushik
Chief Manager, IS (Communication Projects), Bharat Petroleum Corporation

Yet another problem is chatting, which is a major waste of time and bandwidth. Employees can get so addicted to chatting that work is completely neglected. Chatting is completely off limits in our organisation. Similar is the case when employees use the company's e-mail facility for personal purposes. The endless chain of forwarded e-mail can crash the mail server and this is something every organisation can do without. We have enforced scanning of e-mail for unwanted content to avoid such problems. If an employee is found to have misused the facility, he is warned.

Security is a major problem as well. When Internet usage is not monitored, it is possible that confidential internal information could be leaked out. Other problems such as viruses and internal hacking attempts are also possible.

All these factors made us enforce monitoring of Internet usage by employees. We believe that it is a highly beneficial practice for the organisation.



"If an employee uses the Internet for personal purposes, it is a waste of available resources"

As a pioneering company providing Internet access, we believe that monitoring employees' Internet access is not an ethical practice. We do not monitor Internet usage by employees for various reasons.

Reading an employee's e-mail is just like opening and reading one of his letters. Every individual has a right to privacy and this basic right is compromised when an organisation gets involved in monitoring.

"The individual's privacy is compromised when an organisation monitors the Net usage of its employees"

Sanjeev Panicker
Manager - Human Resources
DishnetDSL



What do *you* think? Come, speak your mind at www.yahoo.co.in

Yet another big issue is that of trust. An organisation can attain success only if there exists complete trust between the management and the employees. Our employees are the essence of our organisation. If we monitor Internet usage, we are breaking that bond of trust. Our employees understand how to use the Internet judiciously, and we don't want to question their integrity by monitoring their Net usage.

The Internet has ushered in an era of efficient and cheap access to information. Knowledge is power. Only if there are enough channels open for efficient communication and constant learning will there be efficient employees.

If Internet usage is monitored, what is the difference between this revolutionary medium and the old channels of communication? Tracking what your employee does on the Internet is just like tapping into a phone line to overhear a conversation. Would all the advocates for Internet monitoring in offices indulge in tapping employees' phone lines as well? I don't think so. Then why should we monitor what our colleagues are doing on the Net? This type of 'Big brother is watching!' scenario only tends to demoralise employees. It also tends to breed a tendency to break the system. Let the Internet be what it is—the best and cheapest method of access to information. There is no need to put constraints on the basic human right to communication and information.

www.yahoo.co.in
Catch 'em live on Yahoo!
Sanjeev Panicker on June 10 at 4 pm and *Anil Kumar Kaushik* on June 20 at 4 pm
YAHOO! INDIA



madhu m. kurup

Are all your eggs in one basket?

Familiarity breeds contempt. It also breeds virus and hacker attacks. Which is why diversity is the name of the game in network security

Normal is boring. Sometimes, though, normal can be more dangerous than just plain boring. Security depends on the attacker being as minimally aware of your information as possible. Highly diverse, dissimilar systems are likely to pose greater difficulty for an attacker than a standard, normal and expected configuration. From a security standpoint, being average is more than just being mean (pun unintended). Using similar application software, operating systems or even configurations is a probable cause for security issues. Thanks to the Internet, now we are much more closely connected than we actually believe or understand ourselves to be. This connection implies that problems in one configuration can migrate to another with ease.

The foremost tool used to externally analyse your machine is nmap (www.insecure.org/nmap). Nmap is a port scanner that can tell you exactly which OS and what services are operating on a given machine. Once an attacker is able to obtain information regarding the configuration of the machine, the situation changes. If the scan reveals the machine to be of a default or well-known configuration, scripts are usually available to attack it. These problems are not specific to just the Windows or just the Unix world, they are occurring with increasing frequency in both.

True, one would assume that there's a fair degree of diversity in the Windows world—after all, Windows is available as 3.1, 95, 98, CE, ME, NT, 2K, XP (with some of these in Home, Professional Server and Data Center variants). If that isn't enough, you may or may not have applied the various service packs supplied by Microsoft. Hang on, we aren't done yet—the IIS Web Server, IE and Outlook Express are available in a variety of versions as well. With so much diversity, we should be safe, right? But given the virus attacks that routinely cripple the Windows world, we realise the effects of having an OS based on a common family with similar security issues. Love Bug, Melissa and the KaK virus extracted a devastating price in terms of the damage they caused. The fact that Microsoft routinely creates software that allows malicious external code to be executed via an e-mail client is inexcusable; the rate at which these e-mail viruse spread is an even more serious cause for concern.

Another example of the implications of a Windows bug comes from a newly discovered exploit that affects IIS 5.0 servers. This bug is estimated to affect over a million servers world-wide. How many of these servers are likely to be patched in time to avoid automated tools that hunt for such servers is yet to be known. However, if you read the relevant Microsoft Security Bulletin, you will find that if you had not retained the defaults but had customised your IIS setup instead, this problem could have been avoided. The rate at which these infections spread reveals that monoculture, especially in an office or in an organisation, is a fertile breeding ground for an attack.

So, then, the Unix world is much safer, right? Well, not really. Linux is humorously described as the Unix de-fragmentation tool. And, for far too long, most new users seem to think that Red Hat is Linux and vice versa. The outbreak of the Ramen, Li0n and Adore (www.nipc.gov/warnings/alerts/2001/01-010.htm) worms indicates that Linux usage is also beginning to show a lack of diversity. These worms make use of the fact that machines are typically installed using the default Red Hat install—something that installs ➜

unwanted software. It may be far easier to set up a safe server using Linux, but that does not explain the success of these worms.

Purists may object that most vulnerabilities occur in applications and not necessarily in the operating system. That is true—but what about cross-platform applications that are now in vogue? Apache can now run on BSD, Mac's OS X, Linux and just about every other platform out there. In a famous hack sometime ago, a bunch of clever hackers attacked apache.org to show that a mis-configured Apache server can lead to serious security vulnerabilities. Ken Thompson's famous compiler hack (www.acm.org/classics/sep95/) again goes to show that one piece of software (in this case, GCC) being used everywhere can lead to system-wide vulnerabilities.

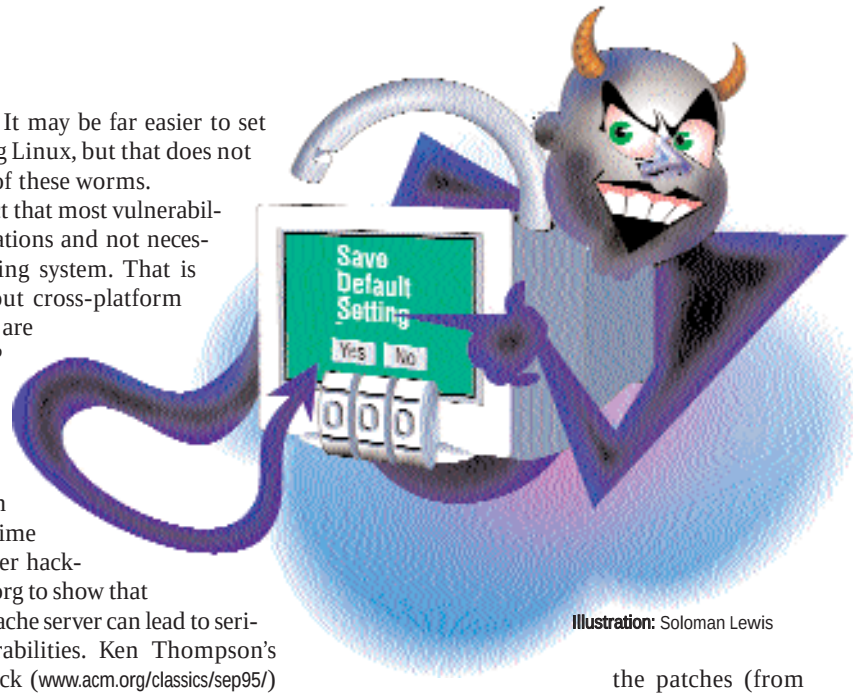


Illustration: Soloman Lewis

If there is gloom about the state of diversity in computer systems, is there a flip side? Using numerous little known, obscure and out-of-date software does not automatically guarantee security. The goal is to use the right software for the right job. Tailor each configuration to a particular need; don't assume that the default is right. Don't use one setup or configuration because it may seem easy to administer or maintain. Security is a trade-off between functionality and safety. Understand the need for diversity in the context of the systems that you are in contact with.

Ken Thompson's famous compiler hack shows that using one piece of software everywhere can lead to system-wide vulnerabilities

Yes, there are advantages to a software or operating system being used by a large number of people. Widespread use results in better testing and detection of potential problems. In communities that can react quickly to problems (for example, the Linux community solved the Ping-Of-Death bug in two hours), the widespread use of software implies that it can quickly become safer. So, is there a middle path to choose?

For the Windows world, the simplest option would be to not upgrade unless you absolutely need to. If your current browser displays pages decently, do you really need that new version? Especially if you have been diligently applying all the patches (from http://windowsupdate.microsoft.com/) for your current setup? Use some of the available freeware firewalls to mask your identity. For the Linux world, do not use the default install—customise each machine based on its requirements. Use a hardening script like Bastille Linux (www.bastille-linux.org/) to kill known security issues. Turn off services that you do not need.

One very interesting possibility is the IP-Personality Patch (http://ippersonality.sourceforge.net/) available for Linux Kernel 2.4. This patch makes your machine look like any other operating system to external scanners—so you can make your Linux machine pretend to be an OS/2, Windows, FreeBSD or Sun Solaris box! This way, you can have your cake and eat it too! You can use a popular distribution (and the attendant benefits) while pretending to be a rare, and therefore difficult to attack, platform.

A heterogeneous network in an office or organisation will need more work and maintenance. It may also need more resources and personnel. But in the larger perspective, if you want a more reliable and fault tolerant setup, then diversity is strength. Learn to mix and match OSes, software and resources. Depending on your needs, use different configurations wherever justified. Try to introduce an awareness of where each software has a particular niche in which it is most suited. Apart from learning about different software and how they interact, this will expose you to potential overlaps between software—something that is useful from a security perspective. More importantly, learning how to use different software keeps you from becoming normal and ordinary—and normal is boring, right?

Madhu Kurup works for the data engineering group at the Yahoo! Software Development Center, Bangalore. He can be contacted at madhumkurup@yahoo.com



Fantasies embedded

Embedded systems and real time operating systems are fast achieving ubiquity, blurring the lines between science fiction and hard reality

ANIL PATRICK R.

A doctor is configuring a cardiac pacemaker inside his patient's chest while sitting 200 kilometres away. Another person is travelling in a driver-less car that takes him from Mumbai to New Delhi using its in-built navigation program. Impossible? Not really. Advances in technology have taken place at such speed that these fictitious scenarios are likely to be translated into reality within the next couple of years.

Real Time Operating Systems (RTOS) and embedded systems are two among the several technologies that will play a major role in making these concepts possible.

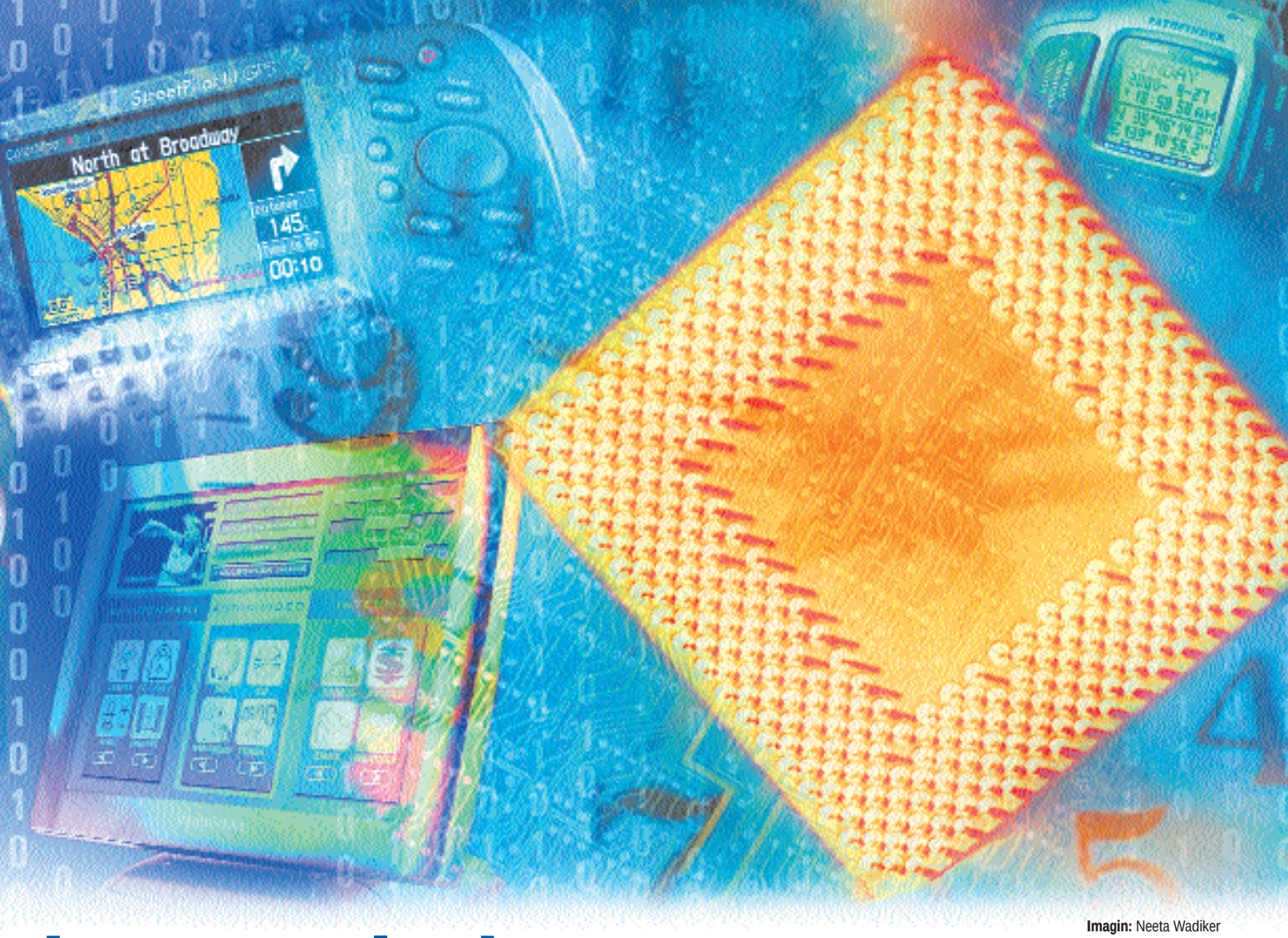
You may say these technologies have been around for a long time and there have been no such dramatic developments. But what you may not know is that RTOS and embedded systems are the unsung heroes of much of the technology you use today—the video game you play, or the CD player or the washing machine you use employ them. Without an embedded system and an RTOS, you would not even be able to go online using your modem. Read on to find out what these technologies have in store for you.

How 'real' is real time?

When it comes to real-life situations like controlling a traffic signal or a steel furnace, the OS has to respond immediately. Imagine the plight of a driver if his car's anti-skid mechanism refuses to respond the moment he jams his brakes. This is where RTOS comes in. Real time operating systems are those that respond to inputs immediately (*see box, 'What is an RTOS?'*).

First stop—embedded technology

Why use a hammer when a gentle touch would do? This is the basic idea behind all the appliances that make use of embedded systems. They are pre-programmed to perform a dedicated or narrow range of functions as part of a larger system, usually with minimal end-user interaction. For example, an entire operating system like Windows 98 is not required for controlling a car's valve that has only certain types of movements, or



Imagin: Neeta Wadiker

in real time

a washing machine, which uses only specific cleaning routines.

Embedded systems are used in navigation tools like global positioning systems (GPS), automated teller machines (ATMs), networking equipment such as routers and switches, digital videos and cameras, mobile phones, aerospace applications, telecom applications, etc. Even toys make use of embedded systems (*see box, 'What goes into an embedded system?'*).

Embedded systems are usually low in cost and are easily available off the shelf for most applications. They usually have low design risks, since it is easy to verify the designs using evaluation boards. The easy availability of good design tools (many of them in the freeware domain) and software engineers have been two key factors in fuelling the growth of embedded systems.

Embedded systems have received a major shot in the arm over the past two or three years due to three factors. The first was the development of standard run-time platforms like Java, which enabled their use in myriad ways that were unimaginable in the past. The second factor was the emergence of several integrated software environments, which simplified the development of these applications. The third factor was the coming together of embedded systems and the Internet, which made possible the networking of several embedded systems to operate as part of a large system across networks—be it a LAN, WAN or the Internet. This convergence of embedded systems with the Internet is going to transform the way we live.

In the driving seat

There are several tasks in which real time OSes beat their desktop counterparts hands-down. A common application of embedded systems in the real world is in automobiles because these systems are cheap, efficient and problem-free. Almost every car that rolls off the production line these days makes use of embedded technology in one form or the other. RTOSs are preferred in this area due to their fast response times and minimal system requirements.

What is an RTOS?

A real time operating system (RTOS) is an OS that guarantees a certain capability within a specified time constraint. There are two types of RTOSs—hard and soft.

Consider an automated assembly line that makes use of robots for assembling a ceiling fan. The robot will be required to place the ball bearings of the fan at the precise moment when each fan reaches a specific position at a certain time interval. In a hard RTOS, if the calculation could not be performed for making the ball bearing available at the right time, the OS would terminate with a failure. For a soft RTOS, the assembly line would continue to operate even though the fan is missing ball bearings. This is bad because the productivity of the whole assembly line is lost. Generally used OSes like Microsoft's Windows 2000 or IBM's OS/390 can be considered as RTOSs since they satisfy some conditions of an RTOS. However, they do not meet all the requirements of an RTOS.

In general, an RTOS has the following features:

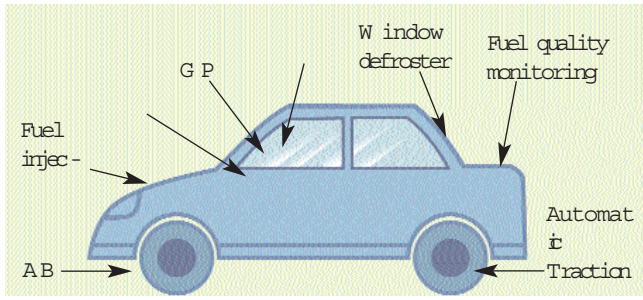
- Multitasking
- Process threads that can be prioritised
- A sufficient number of interrupt levels

RTOSs are usually employed in small embedded operating systems that are packaged as part of microdevices like microprocessors.

The major difference between embedded systems and RTOSs is that embedded systems are basically platform-less systems, that is, they do not use any operating system, whereas RTOSs work on specific OSes.

Most of the embedded systems in automobiles are rugged in nature, as most of these systems are made up of a single chip. Other factors aiding their use are the low costs involved, ease of development, and the fact that embedded devices can be networked to act as sub-modules in a larger system. No driver clashes or 'system busy' conditions happen in these systems. Their compact profiles enable them to fit easily under the cramped hood of a car.

Embedded systems can be used to implement features ranging from adjustment of the suspension to suit road conditions and the octane content in the fuel to antilock braking systems (ABS) and security systems. Speaking of things nearer home, the 'computer chip' that controls fuel injection in a Hyundai Santro or the one that controls the activation of air bags in the recently launched Fiat Siena Weekend is nothing but an embedded system. Right from brakes to automatic traction control to air bags and fuel/air mixture controls, there may be up to 30-50 embedded systems within a present-day car. And this is just the beginning.



Embedded systems in a car

Home is where the chip is

How would you like to live in a house that recognises your fingerprints and opens the front door automatically? Imagine a fridge that checks your food supplies and places orders to replenish them; or intelligent lights and air conditioners that adjust their settings automatically according to the light and heat available at various times of the day. What about a microwave oven that can send a message to your PDA saying that the cake you kept to bake is done? These are all possible in the near future. In fact, many of these devices have already made their debut using embedded systems for controlling them and the Bluetooth technology for communication.

Homes of the future will employ embedded technology devices to become 'intelligent'. An intelligent house is essentially a network of smart devices, which could be a fridge, TV, microwave oven, washing machine or any of the numerous domestic appliances that we use at home. They will be able to optimise themselves or report maintenance problems to technicians using built-in management functions. And they will also be connected to the Internet in most cases.

Real time OSes will work wonders when it comes to intelligent houses. The huge advantage they have over desktop OSes is their low cost. This factor alone can keep desktop OSes out of the running, but there are other reasons as well. An intelligent house may have more than 50 different devices in it. Imagine the cost of licensing that many copies of Windows 2000! Also, RTOSs are capable of being inter-networked, which enables co-ordinated functioning between devices at a scale that is unimaginable if desktop OSes are used. Imagine getting scalded while having a hot shower—all because of an OS 'freeze' or 'crash'. Ouch!

The doctor will see you now

Imagine a time when body transplants like cardiac pacemakers will be able to monitor and manage themselves remotely. These systems will be so compact that the patient wouldn't even be aware that they are embedded in his body. Another point in favour of RTOSs is their stability, instantaneous response and efficiency. No OS crashes or delays in responding, as is the case with most desktop OSes. After all, which patient can rest easy with the thought of his life literally hanging by a thread due to the time taken by the OS to load!

Embedded technology advances are pointing towards the use of pacemakers that can be transplanted in or near the heart itself. The pacemaker will be able to monitor parameters like blood pressure, blood flow, pulse rate, temperature, etc, using microsensors planted in various parts of the body. This capability will enable the pacemaker to automatically vary its operation to suit the changing body conditions. It will also transmit data using wireless transmission, thus enabling a doctor to constantly monitor its operation. In most cases, wireless transmission is likely to be done by a transmitter implanted near the surface of the skin. In case any abnormality is detected, the doctor will be able to take remedial action even from a remote location.

Wired wearables

A mobile phone in the form of a ring or a earring? What about cool sunglasses, with streaming video displays built into them? All these can soon be a reality. Embedded systems have a small footprint and consume very little power, which makes them ideal for wearable computing applications. The minimal system requirements of these devices ensure that the hardware is almost microscopic.

IBM is already working on the prototype of ➜

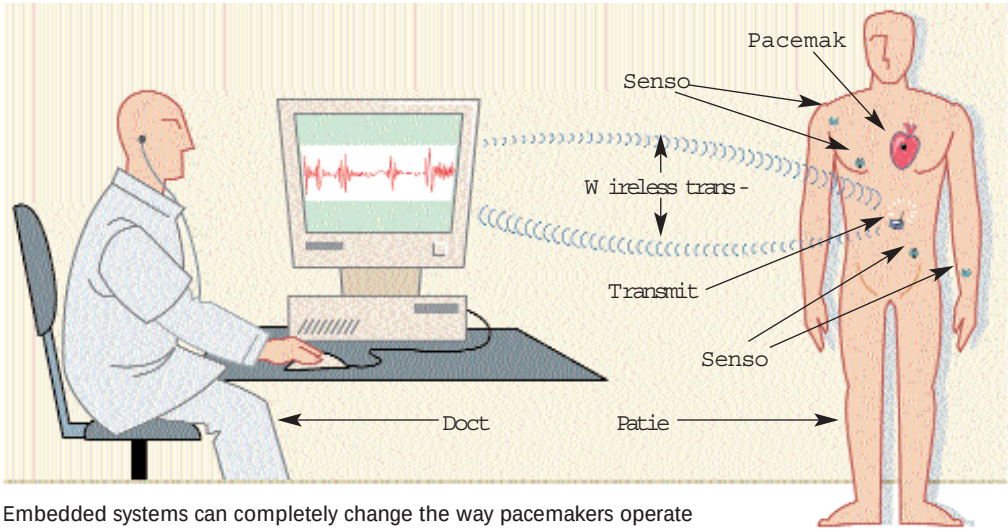
Infographics: Mahesh Benkar

What goes into an Embedded System?

An embedded system is any device controlled by instructions stored on a chip. These devices are usually controlled by a microprocessor that executes the instructions stored on a Read Only Memory (ROM) chip.

One of the most popular Real Time Operating Systems (RTOS) in use today is QNX (pronounced 'queue nicks'). It is used for everything from medical instrumentation and monitoring nuclear reactors, to traffic lights and industrial process control. In fact, it is so widely used that we use devices having QNX several times a day without being aware of it.

QNX makes use of a micro kernel as opposed to OSes such as Windows and UNIX, so system level functions such as device drivers are not part of the system. The kernel contains a minimum number of features for implementing basic system calls. These include message passing along with other interprocess communication, interrupt handling support, and other features. The other functions of the operating system are provided optionally and modularly through processes that communicate mostly through message passing. Message passing is a two-way asymmetric synchronised exchange of data between two processes in the OS. It is called asymmetric because one of the processes must be a 'sender' and the other must be a 'receiver' for passing to take place.



Embedded systems can completely change the way pacemakers operate

a mobile phone that can be worn as jewellery. The components of the phone will be distributed among different pieces of jewellery—earring, necklace, ring and bracelet.

The phone is likely to have Bluetooth capability built into it. The earrings will have embedded speakers and will act as the receiver. The necklace will have embedded microphones that will act as the mouthpiece users can talk into. IBM calls the ring part of the phone the 'decoder ring'. Light emitting diodes (LEDs) will flash to indicate an incoming call. The ring will also have features that will enable it to be programmed to flash different colours for a particular user or to indicate the importance of a call. A video graphics array (VGA) will be built into the bracelet, which will display the name and phone number of the caller. The bracelet will also integrate the keypad and dialling functions in it. IBM plans to incorporate voice recognition technology for dialling a number. The phone may also have features to indicate new e-mail.

Don't keep your eyes on the road

Embedded systems can also make driver-less vehicle control a reality. Major automobile manufacturers are already engaged in work on these concepts. One such technology is Adaptive Cruise Control (ACC) from Ford.

ACC allows cars to keep safe distances from other vehicles on busy highways. The driver can set the speed of his car and the distance between his car and others. When traffic slows down, ACC alters vehicle speed using moderate braking. This ensures that a constant distance is maintained between cars. As soon as traffic becomes less, ACC moves up to the desired cruise speed that has been set by the driver. The driver can override the system anytime he wants to by braking.

Each car with ACC has a microwave radar unit or laser transceiver fixed in front of it to determine the distance and relative speed of any vehicle in its path. The ACC computer (what else but an embedded system or a grouped system of embedded systems) constantly controls the throttle and brakes of the car. This helps to make sure that the set cruise speed or adapted speed of traffic at that time is not exceeded.

Another revolution is the way Internet services will be integrated into the car. So when you drive past your mechanic's, you will be reminded that your engine oil needs a refill, and when you cross the city limits, the toll will automatically get deducted from your bank account. And while passing the shopping mall, your PDA,



A mobile phone that you can wear as jewellery

which is connected to the Net via the car, will inform you about a new sale. In fact, the automatic toll deduction concept is already in effect in several countries around the globe.

All these application areas are just tiny drops in the big ocean of embedded systems technology. These proverbial 'Davids' are all set to conquer a world that is forbidden territory for the popular desktop OS 'Goliaths'. So wait with bated breath for the fireworks to come. They are sure to blow your mind.

sIZE it up!

MOHAN KRISHNAN

You can't just call them personal digital assistants any longer. Most PDAs now offer Internet connectivity and come with pocket versions of your regular software such as Word and Excel. Others have even covered personal entertainment with built-in MP3 players and support for watching movie clips. Here's a look at some next-generation handhelds.





Sony Clie PEG N-710C
Pure Entertainment

The Sony Clie is not just a PDA, it's also a personal entertainment organiser, with an in-built MP3 player, audio software and a high-resolution reflective TFT colour display (320x320 pixels) screen that can even be used for watching movie clips. The 33-MHz Motorola Dragonball VZ processor with the Palm OS forms the basic framework for this device.

Web site: www.sonystyle.com/micros/clie

HP Jornada 720
PDA Powerhouse

A convenient PDA that also provides Internet connectivity, the HP Jornada 720 sports a 206 MHz processor with 32 MB SDRAM and also offers 2D graphics acceleration. There's an in-built 56K modem, and also USB support. It weighs 510 grams and comes with the Pocket Office suite. The 6.5-inch colour display is capable of 65,536 colours and a maximum resolution of 640x240 pixels. You can also record notes using the built-in voice recorder.

Web site: www.hp.com/jornada





Compaq iPAQ Pocket PC
Packed to Perfection

It's light, quite light, at just 178.6 grams, but with a 206 MHz Intel RISC processor under its hood, the Compaq Pocket PC promises to zip through e-mails, schedules, MP3 files and digital photos. Standard Pocket PC versions of office suites are available, as also support for 4,096 colours at 12-bit (240x320 pixels).

Web site: www.compaq.com/products/IPAQ

Psion Revo Plus
Mobile Internet Organiser

At 200 grams, this mobile organiser doesn't weigh you down even though its loaded with features. Revo Plus comes with an ARM 710 core running at 36 MHz. It includes standard features such as a calculator, scheduler, alarms, etc, and you can specify different alarms that will set off at the appropriate times. Colour display is still missing in the 4800x160-pixel resolution. You get e-mail as well as WAP connectivity with this PDA.

Web site: www.psion.com/revoplus



Ericsson Communicator Platform
All-round Communication

The Ericsson Communicator Platform is based on EPOC. It has an in-built GPS receiver for positioning information and works on GSM technology. Internet is accessible through WAP as well as HTML. There's also an in-built Bluetooth chip for wireless connectivity with other devices. The Communicator comes with a colour touch-screen and the interface is designed for easy accessibility.

Web site: www.ericsson.com



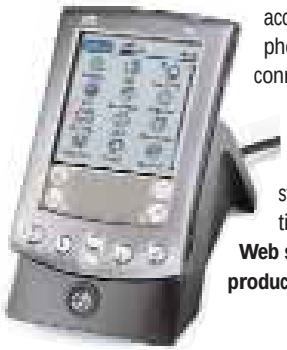
Nokia 9210 Communicator
Talk Mobile

The Nokia 9210 Communicator uses the EPOC (from Symbian) platform and 3G technology for much of its mobile functions. The Communicator provides up to 4,096 colours and comes with word processing, spreadsheet and presentations software. Other features include mobile e-mail, WAP and mobile multimedia. This sleek gadget weighs in at 244 grams.

Web site: www.nokia.com/phones/9210/index.html

Palm m505
Palm Time

An LCD screen with support for 65,000 colours, expansion card slots and the Palm OS 4.0—these are some of the best features of the m505. If you have access to data-enabled mobile phones, you can also use the connectivity software to get onto the Net, use SMS or access e-mail. You also get Pocket software to aid you with standard document applications.



Web site: www.palm.com/products/palmm505

Visor Edge
Spring it On

Its USB cradle makes synchronising the Visor Edge quite a simple task. It also has the Springboard expansion slot, which allows you to add devices and change the very nature of your handheld. The Visor Edge runs on the Palm OS, so you can install all the popular software for the Palm OS. There is a 33 MHz Motorola Dragonball VZ processor with 8 MB RAM.

Web site: www.handspring.com/products/visoredge



SEE SHARP



Illustration: Mahesh Benkar

If you, like Microsoft, believe that .Net is going to change the face of computing, get a certification in this platform and join the revolution

MANU KHANNA

The last time Microsoft did something from 'scratch' was in 1990 when it launched a new 'ghost' operating system which, unlike its predecessors (the DOS family), could be operated by a device called the 'mouse'. This ghost OS was Windows 3.0. Since then, Microsoft has just been improving (still improving!) its OS by adding more features to make it more user-friendly.

Finally, 11 years later, Microsoft has launched .Net, which, if all goes well, is going to change the way computer users go about their work. Simply put, .Net is a new operating system platform that aims to take users to the next generation of the Internet. It plans to do so by conquering the deficiencies of the first generation, which is the present-day Net, and by giving users a more enriched experience when they work with the Web for both personal and business applications.

The story so far

Necessity is the mother of invention, and so it is in this case. .Net is an invention that was fuelled by the idea of making distributed computing the next 'Giant Leap in Technology' after the Internet.

In the distributed computing model, components and objects belonging to one application can be located on different computers as long as they are connected via LAN or over the Internet. For example, a spreadsheet application could have the Main Editor on one computer in India, an Organisational Chart Object on a second computer in the US and a Standard Deviation Object on a third machine in England. Sure, that

What is available?

Following are the courses that have been released by Microsoft to its training partners across the world.

Course 1905: Building XML-based Web Applications

Description: Training on how to structure and validate data in a document by using document type definitions (DTDs).

Course 1913: Exchanging and Transforming Data Using XML and XSLT

Description: Techniques for exchanging and transforming data using XML and XSLT. Best practices for using XML and XSLT by giving compelling examples of the best ways to solve real-world problems.

sounds cool. Wait, there's more. Some distributed computing systems would be such that each of these three computers could actually be running a different operating system!

To put it in a nutshell, .Net plans to erase the boundaries that exist between applications and the Internet. Instead of interacting with an application or a single Web site, .Net will connect the user to an array of computers and services that will exchange and combine objects and data.

Big deal! What do I get out of it?

Thanks to the unpredictable 'blue screens' and a million other shortcomings that have been an integral part of all its software products, Microsoft has always been criticised. But still, Microsoft products are the obvious choice for new computer users. In fact, most home, SoHo and even enterprise users don't know of any OS other than Windows. Even today, it's virtually impossible for most people to name a word processor other than MS Word. So, in .Net's case as well, people are likely to accept it with open arms.



> The demand for .Net professionals is going to increase by leaps and bounds once Microsoft releases the first .Net-based operating system
>
> Jitendra Nair
> Karrox Technologies

According to Nua Internet Surveys, by the end of last year, the number of people connected to the Internet was 407.1 million. To develop software that is stored online for so large a community, a massive number of programmers would be required—something that Microsoft knows it cannot handle by itself. Therefore, it has introduced a certification programme to enable people other than its own employees to use its source code to develop applications for .Net. Once you complete this certification, you will become a certified professional in this platform.

So is MCSE/MCSD Dead?

No it isn't. Microsoft has broadly bifurcated its training and certification into networking, applications and development. The Microsoft Certified Systems Engineer course, popularly known as MCSE, is a networking course wherein a student is imparted training on installing, configuring and administering the Windows 2000 operating system.

On the other hand, the Microsoft Certified Solutions Developer or MSCD is a programming course and deals with developing customised software and solutions for the business or SoHo community. For example, after completing the MCSD course one could use MS SQL or Visual Studio to develop inventory control software for, say, a large production house. After this certification the student can also administer and manage databases with the SQL knowledge that he/she has acquired.

.Net is also a programming course and to a certain extent can be called the successor to MCSD. Till now Microsoft has not announced a replacement for the current MCSD track. However, it might do so in the future. So the best bet for someone who is interested in getting a programming-based certification is to go in for .Net rather than MCSD.

The reason for this is quite simple: if and when Microsoft disbands MCSD, the demand for MCSD professionals is going to decline. In such a scenario, most MCSD professionals will end up spending huge amounts of money and, more importantly, time to upgrade their skills to the .Net platform.

Tools of the trade

As with most certification programmes, there is no fixed minimum requirement that has been laid down for the .Net certification. According to Jitendra Nair, vice president (Software Education Division) of Karrox Technologies, "Though Microsoft hasn't defined any fixed criteria for .Net exams, we at Karrox believe that at the very least the student should be a graduate as it becomes easier for him or her to comprehend the technology that is being imparted."

This isn't all. The .Net platform will be used to develop Web-enabled e-commerce and m-commerce applications, which will incorporate XML as an industry standard interface for exchanging information. So the minimum requirement for taking the exam would be to acquire a thorough knowledge of XML and also of WinForms, C#, ADO.NET and ASP.NET.

It is also recommended that you have knowledge about software servers that facilitate creation of distributed and scalable applications. These include BizTalk Server (for B2B applications), Commerce Server 2000 (for B2C

applications), IIS 5.0 Web Server, Exchange 2000 (messaging server), SQL 2000 (database server), etc.

The Facilitators

Going by the requirements, you are probably getting a fair idea of the scope and vastness of the .Net platform. But don't think that this is something you can't do on your own. You can. The only things required are dedication and a lot of hard work. Once you think you are ready, you can walk up to the nearest Microsoft Prometric Institute one fine day and crack the exam.

In case you think you can't, there are people and institutes that can help you. In India, Microsoft has tied up with various institutes to provide training to people who are interested in .Net certification. One such institute is Karrox Technologies. It is offering .Net as part of a comprehensive modular career program called K-Map that spans four semesters. Karrox is not the only one. NIIT and APTECH are also offering .Net certification courses.

That's it then

Now comes the all-important question—what about job prospects? .Net is still in its nascent stage in India. Still, one thing is certain. Sooner rather than later, the demand is going to build up. Nair adds, "The initial intent is there. Companies are ready to absorb .Net professionals. The demand is going to increase by leaps and bounds once Microsoft releases the first .Net-based operating system, which it should by the end of 2001."

Employment avenues aside, another issue of concern is the remuneration that will be offered. This is because we Indians have this really bad habit of going and doing the same course that our neighbour did. As a result of this, 1,000 job seekers might line up for 50 vacancies. Because of this excess supply in relation to demand, those who finally do get the jobs will end up working for half to one-fourth of what a .Net professional would get in the US. This has happened in the past with jobs related to MCSE/MCSD, Java certification, etc, and it just might happen again.

In any case, if your basic programming concepts are clear, then you should be able to decide whether or not .Net certification is the thing for you.

Visit www.microsoft.com/downloads and download the software (if you have lots of bandwidth, that is) along with the documentation. Play around with the software and let that help you make up your mind about whether or not to go in for the .Net certification.

Try it out!

Here is a glossary of some of the technical terms

C#: Pronounced as 'C sharp', this is a simple, object-oriented, and type-safe programming language. C# is firmly planted in the C and C++ family tree of languages. C# aims to combine the high productivity of Visual Basic and the raw power of C++.

ASP.NET: A revolutionary new programming framework that enables the rapid development of powerful Web applications and services. Part of the emerging Microsoft .Net platform, it provides the easiest and most scalable way to build, deploy and run distributed Web applications that can target any browser or device.

1/2 Page H. AD

On my wavelength...

Graphic images of impending storms, instant reporting of events from remote corners of the world, receiving quality radio broadcast even when you are on the move…welcome to the world of satellites



Illustrations: Mahesh Benkar

Isn't it strange that satellites that were developed for spying and other defence needs during the Cold War are now affecting our daily lives? So much so that we don't leave our house for a trip to the nearest hill station before seeing the latest weather report beamed down to us by our 'friend from up above'—the INSAT IIB satellite.

When disaster strikes

Jan 2001: *Devastating earthquake rocks Gujarat*

Predicting earthquakes is an extremely complex task due to the challenges involved in tracking the minute shifting of the earth's tectonic plates, which collide to cause earthquakes. These measurements are difficult to record because the plates move just a few millimetres every year.

Seismologists at the California Institute of Technology and the Japanese Geographical Survey Institute (GSI) are now hoping to use Global Positioning Systems (GPS) to accurately predict an earthquake a few hours before it actually strikes, thus preventing the loss of thousands of lives.

Solar-powered receivers and antennas are placed in quake-prone regions. They transmit their positions through signals, which are sent out every 30 seconds or so, to two or more satellites in orbit. Researchers and scientists use the results to try and predict when the stress building between plates is likely to culminate into an earthquake in a particular region.

GPS locks into air traffic

November 1996: *Midair collision over India. Over 300 feared dead*

The exponential growth in the sheer volume of air traffic over the last decade has led to a number of new challenges for the existing air traffic control infrastructure. Managing the progress of each individual aircraft is currently done by tracking them using a combination of high-frequency radio and radar networks.

Boeing has put forward an audacious plan that proposes to replace radar with GPS-based satellite tracking. GPS receivers can pinpoint their location with a great degree of precision by triangulating signals from any of the 24 NAVSTAR satellites that orbit the earth. This really precise information can then theoretically be used to reduce the separation between aircraft and plan more direct routes to a destination.

Plans include using a constellation of 16 satellites in a 12-hour medium earth orbit (MEO) at the same altitude as the NAVSTAR GPS satellite system. Such a large network would help ensure that any airplane or air traffic control terminal is within the view of at least two satellites, so that in the event of a satellite failure, an adjacent satellite can ensure seamless service.

The US-based FAA and cargo airlines such as UPS and FedEx are already testing the feasibility of GPS-based alternatives, which can help increase safety and efficiencies in controlling aircraft arrivals and departures. Using new digital tools, pilots would be able to get precise information from their cockpit displays about their position, the positions of other planes and maps of a particular airport and its runways. This would be enabled by a combination of satellite positioning technology and digital datalinks between aircraft.

If Boeing and the others can convince the sceptics that this system has to be adopted, it will become necessary for each and every one of the world's 14,000-plus commercial jets, military and private aircraft to have a costly receiver installed. The likelihood of this happening in the immediate future seems remote, but over the long run satellites may be the only way to enable aircraft to fly more safely, ease congestion, and prevent flight delays that seem to be an everyday occurrence.

The new radio

Most of the applications for satellites have traditionally been centred around communication, whether you consider the extremely successful services for consumers like television broadcasting, moderately successful ones like satellite-based Internet access, or ones that just did not take off—like the Iridium telephone communications network.



One new service that has begun to take off all over the world is satellite radio. Radio has been an extremely popular medium since before World War II. Even in the age of television and the Internet, radio continues to be popular amongst a wide range of audiences. Traditionally, the problem areas for radio have been the quality and range of the broadcast. Despite the popularity of thousands of stations that have adopted the Internet as a medium for streaming music to listeners all over the world, these issues have not been resolved completely.

Satellite radio promises to deliver a solution to both of these problems. It is probably the first significant advancement in radio since the arrival of FM more than 30 years ago. It offers listeners access to their favourite programmes while on the move, when they are out of range of conventional radio stations. Picture this: static free CD quality music from your favorite station, beamed to you in your car, home, or personal stereo—anywhere in the world. This is going to be possible because digital technology is actually being incorporated into the radio receiver set itself.

Sirrus, XM Radio and Worldcast are the pioneers that are looking to bring satellite radio to consumers all over the world. All of them will probably use proprietary chipsets in their receivers that will allow them to decipher the encrypted broadcast signal. The signal itself will be transmitted via a network of two or three satellites and several ground-based repeating stations.

These services are targeted primarily at car radio listeners, who will have access to a large selection of channels. The receivers are already being offered by car manufacturers in the US, including Ford, BMW and DiamlerChrysler, as options on their newer models. Users will have to pay a monthly subscription charge for the service, which will include many commercial-free channels. However, several of the larger manufacturers of consumer electronics like Hitachi, Panasonic and JVC have introduced digital receivers for the home device markets.

Future scope

Although a large number of people are already dependent on satellites, mostly for communication, these 'eyes in the sky' are now going to make an impact on our everyday lives in a more significant manner. What kind of help will these satellites render unto humankind in the future? Even Nostradamus would have been hard-pressed to answer this question. But what is certain is that we shall continue to become increasingly dependent on these sentinels that orbit our planet.

Car Watcher

Beware, all car thieves!

US-based Seaguard Electronics and Directed Electronics have developed Valet Car Com II, a system designed to provide a Web-enabled theft tracking system that can be accessed from any PC connected to the Internet. So if your Maruti gets stolen, just use this cyber 'valet' to track down the missing car.



WorldSpace becoming a Radio Star?

In India, US-based broadcaster, WorldSpace, first test-launched its radio services in Bangalore in September 2000. The company claims that the response has been quite positive. WorldSpace is offering several models of satellite radio receivers, ranging from Rs 4,400 to Rs 9,990.

They have signed up with Radio Mid-Day and AIR, in addition to other popular international broadcasters. WorldSpace also creates some original programmes, including modern rock and contemporary pop hits as well as broadcasts for children and adults.

Music, education and entertainment programmes in a multitude of languages that include English, Hindi, Tamil and Telugu are beamed by the AsiaStar satellite to subscribers across Asia.



Photograph: Jiten Gandhi, Imaging: Solomon Lewis

E-MAIL, *DESI ISHTYLE!*

Regional language e-mail and chat are here to enhance your Internet experience. So log on and reach out…language is no bar!

ANIL PATRICK R.

Tired of hearing your grandma complaining about how difficult it is for her to read your *angrezi* e-mail? Don't fret, for help is at hand in the form of various sites offering e-mail in regional languages. Yes, you can now send e-mail in Indian languages like Hindi, Marathi, Gujarathi, Bengali, Malayalam, etc.

Check out what technology has in store for people who are more comfortable communicating in their mother tongue.

Regional language e-mail sites

Some of the major Indian sites offering these facilities are www.epatra.com, www.mailjol.com, www.rediff.com, www.mail.sify.com, www.jagran .com, etc.

A US-based site, www.langoo.com, offers e-mail in Indian as well as several international languages. All these sites offer Hindi and some even offer up to 12 or more regional languages.

These sites make use of a technique called transliteration for conversion of English characters to regional language fonts (*see box: 'Transliteration', for more details on how it works*).

Epatra.com

Epatra is one of the best Indian sites offering regional language e-mail services. It currently has 11 regional languages on its menu—Hindi, Marathi, Gujarati, Punjabi, Malayalam, Assamese, Bengali, Tamil, Telugu, Kannada, and Oriya.

Registration is easy, after which you can start firing e-mail in any (or all) of the 11 languages. Epatra also has features like chat in regional languages, *kamna* cards, discussion forums, news, etc (*see box: 'Get that Epatra Going'*). To help you compose your message in the regional language, epatra has a typing assistant that shows you the correct combination of English characters to get the regional language character.

Mailjol.com

Mailjol is similar to epatra and also features 11 languages. It is easy for even a novice to figure out the interface. Download and install the software component, and you are ready to go. The main difference in features between mailjol and epatra is that in mailjol, you just have to click on regional language characters from a table for them to appear in the message. It also features a typing assistant similar to the one on epatra.

Find it on digit interactive

Bookmarks on sites dedicated to Indian art
Check out
Playware

Transliteration

The easiest way to write a message in a regional language is to type out the words using the Engish alphabet. For example, *Aap kaise hain*? (How are you?). Sites that offer the facility of sending e-mail in regional languages will then convert this message into the vernacular script.

This process of converting characters from one particular script to another is called transliteration. In our case, it would be the conversion of the English (also known as Roman or Latin) script to Hindi or Telugu or another regional language script, and vice versa. It should be clearly understood that transliteration is not the same as translation. In transliteration, only the characters are converted to another script. There is a strong possibility that factors such as pronunciation, meanings, accents, etc., would change if transliteration methods are not properly designed and used.

A transliteration can either be applied to a string of text in one go, or can be used incrementally for a typing and buffered output. For example, let's consider that you want to have the word 'Hello' transliterated to Hindi. For the Hindi equivalent, you may have to type in 'Helau'. This is the string of characters that gives the Hindi script equivalent of Hello after transliteration. Different transliteration schemes have different string combinations.

Most transliteration schemes work reasonably well with Hindi, but are not as efficient with other regional languages.

Jagran—Hindi special

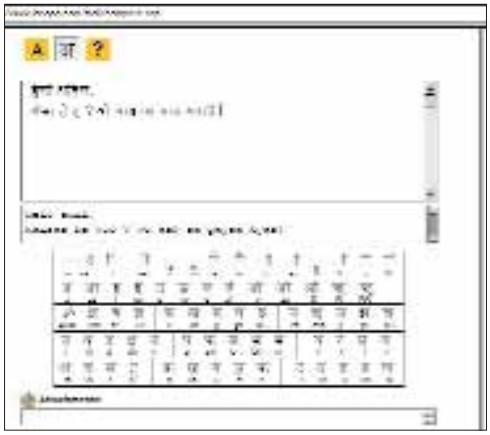
In case you need to send only Hindi e-mail, check out this site. www.jagran.com offers the option of sending mail only in English or Hindi. Registration is simple. The page will look unreadable when you log on for the first time, but this is rectified after you download the required fonts by selecting the option, Download Hindi Font, and then installing it.

One option for sending e-mail in Hindi using Jagran is the Phonetic Style, which is the same as transliteration and allows you to type the letter in Hindi using English equivalents. You could check the Show/Hide keyboard option when you're composing a Hindi e-mail. This brings up a Hindi keyboard below the mail being composed. Positioning the cursor on each alphabet will give you the English equivalent of the Hindi alphabet. Above the Hindi keyboard is a dynamic guide showing the different Hindi equivalents based on the first alphabet you type.

Langoo.com—a global view

If you're looking for something more than just an Indian language e-mail site, you must visit www.langoo.com. This US-based site offers an impressive array of Indian and foreign languages. In addition to Indian languages such as Hindi, Tamil, etc, langoo.com also features Chinese, French, Arabic, Russian, Greek and a whole host of other languages. This is one of the best sites for sending regional language messages and the options offered are sure to make you linger on at the site to check them all out.

You can even chat and send e-cards in your native language (provided, of course, it's supported by the site). In fact, the whole site can be viewed in your native language instead of in English.



Langoo.com: view it in the language you want

The best part about Langoo is that it does not require you to install any new fonts, and using it is child's play. The language can be changed at your whim. Hindi, Punjabi, Tamil, Farsi, Gujarati and Urdu are the Indian languages currently available on Langoo. A help list on English character equivalents for the regional language characters is available under the text box where you type in your message. This is a very useful feature when compared to epatra and rediff, where the alphabet usage lists appear only when you type in the first alphabet.

So what are you waiting for? Select your language, register, and start Langooing.

Get that Epatra Going

Click on the Sign Up link on the home page to get the registration form.

Fill in the form and click the 'Register me' button at the bottom of the page. This takes you to the next page along with a prompt, asking if you want to download and install HIInstall.exe. Click on the 'Run program from current location' option and press OK. The font will be automatically installed on your system.



Now go to the bottom of the Web page and log on using your password. This takes you to the Inbox. Select the Compose option on the left-hand side of the page to start composing your e-mail.



Select the language in which you want to write your e-mail. Click Go, and start typing your mail.



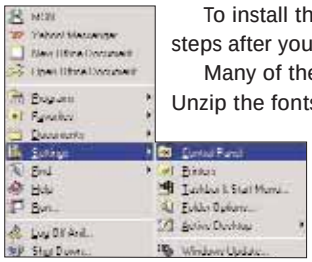
As you type the first letter of an alphabet, a help table pops up,



showing the correct combination of English characters required to get the desired regional language character.

Downloading and Installing Fonts

Except for langoo.com, most sites that employ transliteration require special fonts to be installed on the PC for proper font display. These fonts have to be downloaded from the site. The process of installing these fonts is simple enough, but it can be quite a pain on a dial-up connection.



To install the fonts, browse through these steps after you have downloaded the font.

Many of the fonts will be in zipped format. Unzip the fonts, using an unzipping utility like WinZip 8.0, to a particular directory.

Now go to Start > Settings > Control Panel, and select Fonts.

Click File, and select Install New Font.

In Add Fonts, select the directory into which you unzipped the font, and select the font name. Click OK, and





the font will be installed on your PC.

In most cases, the fonts may not be clear or may not be displayed properly. Well, the only solution to this is to install them again.

Problems that may crop up

Most of the problems that may crop up when using regional e-mail services are related to the fonts. At times, the fonts may not be clear or may not be displayed properly. In such cases, try installing the fonts again (*see box: Downloading and installing fonts*). Problems may also arise at the receiver's end. He/she will not be able to view the e-mail properly if the required fonts are not loaded. Most of the services include a link on their e-mail, which enables the recipients of these mail to download the fonts directly from the site. And do read the FAQ section of the site as it will provide you information on rectifying the problems that you will encounter.

So now you can make your e-mail as personal as you would a handwritten letter in your mother tongue. And no more worries about postal or courier delays either. Reach out and say what you feel—anytime you feel like it!

1/2 page H. AD



Photograph: Mexy Xavier Imaging: Ram

WELCOME TO MY HOME

Build it exactly the way you've always wanted to and watch the world admire your dream work. We're talking about constructing your own Web site

RINKI BANERJI

"What a wonderful home you have!" You hear these words and beam with pride. Ever wondered about having another home that could make you as proud? Your very own Web site can have its doors open 24 hours a day to visitors from all over the globe.

Make it your dream home...

Once you have decided what your site is going to be about, whether it will be a professional Web site or a personal Web page, you might be fretting about the labour and expense it might entail. Think again! It's actually simple, usually economical, and can become a rather interesting endeavour. On your personal Web page, you can upload photographs of yourself and your loved ones. Tell the world what an interesting and eventful life you lead, by maintaining a personal diary that folks from across the world can peek into around the clock. Professional sites, on the other hand, are centred on a business proposition. As Atul Garg, an MBBS student who has built his own site (www.atulrg.com) says, "Personal Web sites help you gain an identity on the Internet, while professional sites help you make money." Irrespective of the purpose of your site, there are certain elementary issues that you will have to deal with when you go about building your very own Web site.

Set Your Sights on Them

Domain suppliers

www.Directi.com
Offers domains for Rs 575. The site is also credited with having a standardised process for domain registration.

www.Vsplash.com
This domain name provider facilitates domain registration at prices ranging from Rs 399 to Rs 599.

www.Net4domains.com
Offers domains for Rs 525. The site also provides banner exchanges, business services, hosting, corporate mailing, etc.

www.123domainregistry.com
Offers real-time domain registration services for Rs 425 with 5 MB of free Web space.

www.register.com
Offers domain name registration online for prices ranging from $35 to $299.

http://domain.ncst.ernet.in
For registering India-specific domain names ending with .co.in

International domain name registrars

www.domain-supplier.com, www.domain-namesco.com, www.webdeveloper.com, www.netcolony.com, www.getyourdomain.com

Site builders

www.geocities.com
Log on and surf through the instructions for building your dream Web site. If you seek a domain name from geocities.com, you'll get it as www.geocities.com/myname. Geocities assists you through the entire process, right from creating your title and page designs (with page builders and page wizards) to uploading your site through a file manager.

www.tripod.com
Tripod provides 50 MB of free space and has introduced new multimedia add-ons to enhance the interactivity of your site.

www.homestead.com
This is a very user-friendly site builder with easy tools and a site building software that can be downloaded and used for designing your Web pages and then uploading them.

Location, location, location!

On the Internet your Web site address becomes your identity. You can choose to use the URL (Universal Resource Locator) provided to you by your Web host, which might go like www.serviceprovider.com/yourname. But if you are looking for a unique identity then your first move should be to register your own domain name.

There are several sites that offer these services, allowing you to register either online with an international credit card or via a longer paper-driven application process which allows you to pay by cheque or demand draft.

You would have to cough up anywhere between Rs 500 and Rs 1,000 to get your domain name registered. You need to first make sure that the name you have in mind has not already been taken. Most of these sites (like www.register.com) provide a search facility that helps you to settle on a unique name for your cyber abode. Simply hook on to the site and enter the domain name you want in the search box to check if it is available.

"When we were looking to register our domain, we found a plethora of tempting offers from various sites. We finally zeroed in on net4domains, which registered our domain name for Rs 575 for a period of two years," says Anup Nair, who owns an e-consultancy site.

Where do I host it?

Once you've decided on your domain name you need to look for a place to host your site. This means getting hard disk space on a computer that is always connected to the Internet.

There are a plethora of sites such as geocities.com and homestead.com offering free Web space to users. These offer anything between 25 and 50 MB of free space. But you would do well to consult your friends and colleagues before you make your choice—some of these free Web space providers can be quite unreliable and a lot of them have shut down services recently. You might end up staring at a blank page instead of your dream cyber abode.

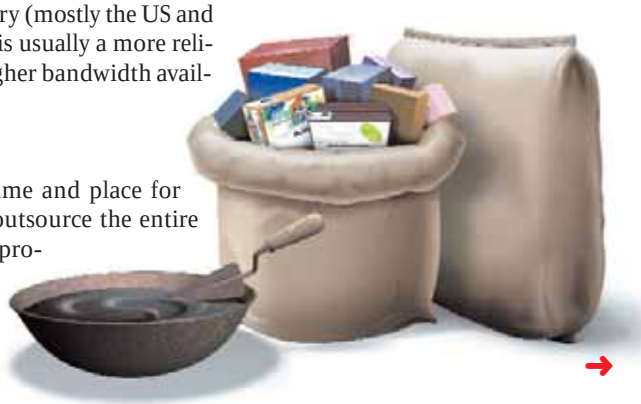
"The netfirms subdomain account of one of my friends got permanently deleted when he did not access it for nearly two months because he had other urgent matters to attend to," says Anup.

Also, the free Web hosts might not be able to provide you with some of the features that are important for your site. "I purchased the domain name from net4domains.com and secured 25 MB of free Web space. However, they do not offer e-mail forwarding services for subdomain accounts and all mail needs to be forwarded to another e-mail address belonging to me. Besides, you can't upload any file bigger than 1 MB, which is a problem for me," says Anup.

If you don't want to avail of free Web space because of the uncertainties and the strings attached, you can buy server space from an Internet Service Provider. Net4domains has packages ranging from Rs 850 for a 2 MB student account for one year to an economy pack which costs Rs 5,500 for 15 MB annually. Hosting on a server located in another country (mostly the US and Canada) can cost less and is usually a more reliable solution due to the higher bandwidth availability in those countries.

Looking for an architect?

Now that you've got a name and place for your site, you can either outsource the entire development process to a professional Web developer or employ your musty gray cells to read up on the basics and then



Working with FrontPage

Microsoft FrontPage is a Web designing software that offers a WYSIWYG (what-you-see-is-what-you-get) effect. Start with a new file from **File > New**. Give an attractive heading, say, 'Welcome to my Web Abode'. Select the text and right-click to set the theme for the page. Select from various effects such as banners, artsy, blends, blueprint effects, etc. The Modify button allows you to change the graphics, colours and text. Next, list the topics you wish to cover about your business, say, company history, achievements, mission statement, sister concerns, company news, and services offered. You can create links for every topic by selecting it and right-clicking for the hyperlink option. All you need to do is enter the name of the file for the link to the page where the details are provided.

Using tables helps to organise the elements on your Web page and facilitates downloads. Just choose the **Table > Insert Table** option from the menu bar. Enter the number of rows and columns for your table. The Insert menu offers plenty of options such as components (hit-counters, hover button, marquee, banner-ad manager, scheduled pictures, etc), forms (check-boxes, text fields, radio buttons, scrolling text box, drop-down menu, etc), and advanced features such as plugins, ActiveX controls, Java applets, etc. It is easy to embed Flash files in your document. Create your .swf and .html files and then copy and paste both the files in the page field of your html editor.

build your own site. Professionals could charge up to Rs 50,000 to design a fairly comprehensive site. This usually includes the cost of the designing and programming involved.

If you decide to do this all by yourself then creating your own Web site will entail a major investment of your time, energy and patience.

A lot of the free Web hosting services offer you Web-based wizards that can help you build your site. All the options for page designing, hosting, and uploading are available through simple clicks. If you have created your own Flash or JPEG files, you can add your own look to the standard design templates available on the sites of these free Web space providers.

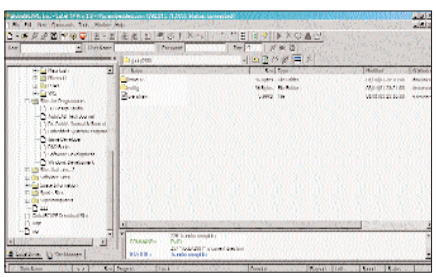
Doing this all by yourself would involve learning how to use a host of designing applications such as Macromedia Dreamweaver, Microsoft Frontpage, Adobe Photoshop, Macromedia Fireworks, Adobe Imageready and Macromedia Flash. Most of these applications can take a while for newcomers to get a hang of.

Be careful that you don't go overboard with those fancy images or you may end up with a page that downloads at a snail's pace. You need to consider the space your site would occupy and the size of each page. You can optimise your graphics images by using the 'Save for Web' option in most imaging software. The GIF and JPEG formats are most popular for simple graphics on the Web.

Ensure that the images and the content are appropriately designed for your site. "I had to work a lot on the logo for my site. In fact, it took me a whole week to get that formal look that is so crucial for a business-oriented Web site," says Anup.

Using CuteFTP

The entire process involves typing in your host name (ftp.yourhostname.com), user ID and password with the host where your Web site resides, and then dragging the index.html (main page) and all other relevant files and folders from your local disk to your space on the server. After you have all the relevant files ready to be uploaded, you simply have to click on the option indicated by an up-arrow sign to transfer your files from your local disk to your server on the Web.





"Designing is not just about using sophisticated applications—you have to use them the right way and for a genuine purpose. The site should have the right 'look and feel' to be able to hold the visitor's attention," says Sunando Banerji, who works at Netguru.com.

Launch pad

Now that your Web site is ready, you need to upload it onto the World Wide Web. For free Web site providers such as Geocities.com and freeservers.com, you can simply upload the files using their Web-based file manager. It allows you to browse for the files on your hard disk that can then be uploaded to the server by clicking a single button.

A more efficient solution could be using one of the numerous FTP clients that allow you to transfer files via a Windows Explorer-like interface. In fact, Windows 98 allows you to use Explorer to transfer files via FTP.

However, a dedicated FTP client would offer you a lot of features such as the resume function that can be quite useful. CuteFTP is one of the simplest and most popular applications for uploading files onto the Net but others like FTP-pro and WS_FTP are quite proficient too. "FTP-pro is a very user-friendly and reliable FTP client and I have been using it for quite a long time now," offers Sunando.

Spreading the word

Once your site is up and running, you will probably want to publicise it by registering your domain name with the more popular search engines such as yahoo.com, altavista.com, google.com, webcrawler.com, lycos.com, and infoseek.com. You can submit your site to these search engines for free. Log on to `www.searchengines.com/urlsubmission.html` for more information about search engines on the Net. The other option is to use software such as

The Right Ingredients

You can enhance your site with interactive features. Links such as 'Contact Us', 'About Us', 'Disclaimer', etc, give the user a general idea of your Web site and can induce him to either surf through it or out of it.

The 'Contact Us' link should include your official e-mail addresses where the user can post his queries and complaints, and offer feedback on your content, products or services. Never display your postal address on your site—it can be misused.

The 'About Us' link should offer company details and a brief description of what your Web site offers.

The 'Disclaimer' notice is a legal document that limits your responsibility for the content, products or services offered through the site.

Submitta, which allows you to save time by submitting your site to a number of different search engines.

Other ways of increasing traffic to your Web site could include a co-branding arrangement with other popular sites, advertising in popular chat rooms that will provide links to your site, or just simply e-mailing your Net buddies to check out your site. You can also use services such as SmartClicks (`www.smartage.com`) that allow you to exchange banners with other members of a huge network.

What else can I add to the site?

Other than the basic Web pages that make up your site, there are several other elements that you can include to make it more interesting. Add a free search engine (using metatags) or maybe a chat room or message board (look at the ones offered by `www.beseen.com`) that provides people a forum to interact. Another important feature that you would want to add is a Web counter that would help you track the popularity of your Web site. Most of the Web hosting services offer basic counters and search features as free features.

Keeping it ship-shape

Just remember that Web site maintenance is a very essential chore. After all, you don't let your brick-and-mortar home run to seed. Your cyber abode will require some looking-after as well. Be prompt when it comes to maintaining your Web site.

The more complex your site gets, the more difficult it will be to maintain it. You need to be diligent and resourceful to tackle those frustrating times when your ISP fails you, when you have problems using your FTP client, or (God forbid!) the server crashes. Updating your site on a regular basis and maintaining consistency in your content are the surest ways to attract visitors and keep them hooked to your site.

Put out the welcome mat

Well, as you can see, making Web sites is not really a big deal. As long as you are clear about certain key issues such as whether to go in for a free domain or buy it from free domain name providers; the kind of facilities you want your site to have; how you want to promote your site to increase traffic, etc.

So get a head start with this new exciting venture. And get ready for the *muhurat* of your very own cyber home.

Have insights to share on creating your own Web site?
Write all about it to readersletters@jasubhai.com

1/2 page Ver Ad

Control kar, yaar!

Two Web-based applications, *GoToMyPC* and *VNC*, let you control your PC from any other computer that is linked to the Net

ALISAGAR PARDAWALA

What if someone were to give you a magic wand and say, "Wave this wand three times over any computer in the world and it will magically turn into the PC you have at home." Well, no such wand exists. But if you are really in need, there is a substitute—in the form of PC-controlling programs and services.

The aim of a PC controlling suite or service is to allow a person sitting at one machine (the local machine) to access another machine somewhere else (the remote machine). Once connected, the mouse and keyboard of the local machine can be used to control the desktop, applications, services and configuration of the remote machine.

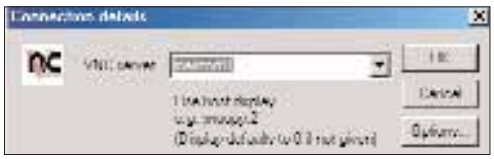
Imagine how useful this can be if you want a technician to solve your computer problems without having to pay you a visit, or if you're abroad and need to access files lying in your PC at home or at the office.

Virtual Network Computing (VNC)

AT&T's VNC is one of the most popular PC-controlling software around, and that is not necessarily because it's free. It is completely platform-independent, so while the local machine runs on Windows, the remote machine can have a different architecture, say Unix. VNC is available under the GNU Public License, which means the program as well as its source code are obtainable for free.

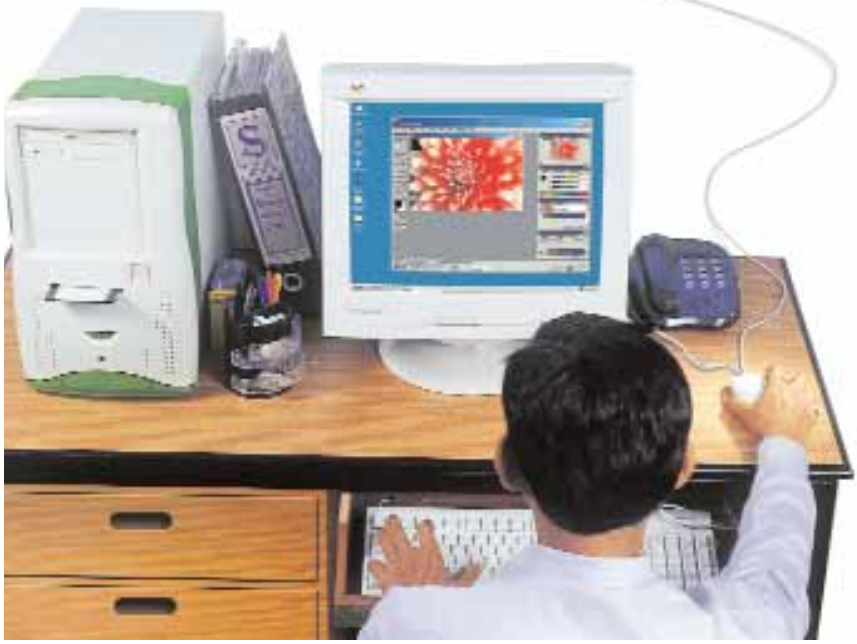
The software is extremely easy to install and use. There are two components in the package: WinVNC is the software that has to be set up on the remote machine and VNCviewer is the software that is used on the local machine.

VNC's performance is excellent. It runs quite smoothly even from a dial-up connection and makes it extremely easy to make and break connections. So you can start a task, terminate the connection, and then come back later to check if the task is complete.



Use the VNCviewer to connect to the remote machine

VNC is quite good for accessing a machine over a LAN, but you can also use it to access machines over the Internet. To do this, you would have to know the unique static IP address of the machine you wish to access. Good points apart, VNC is not perfect. It does not have the facility to directly transfer files between the remote machine and the local machine.



Photographs: Rahul Sharma **Imaging:** Ram

Setting up WinVNC

Step 1: Download the package from www.uk.research. att.com/vnc/download.html. Run the Setup program to install WinVNC on the remote machine. When you run WinVNC for the first time, you will be asked to set a password. The program will then run as an application in the system tray. The machine is now ready to accept connections.

Step 2: Copy the VNCviewer program on to the local machine and run it as an application. You will be prompted for the host name. If you are not on the LAN, you will have to enter the unique IP address of that machine. Click OK, and you will be prompted for the password you set.

Voila! A window opens, showing the contents of the remote machine. The remote machine will now respond to the local machine's mouse and keyboard.

Vital Stats

GoToMyPc
Price: $19.95 per month
Web site: www.gotomypc.com
Download size: 1.35 MB for the server, 200 KB for the viewer
Platforms: Windows 9x/NT/2000

Virtual Network Computing
Price: Free
Web site:
www.uk.research.att.com/vnc/download.html
Download size: 978 Kb
Platforms: Windows 9x/NT/2000, Linux, Unix, Sun Solaris

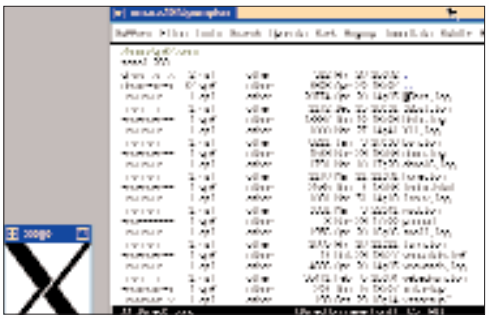
Accessing VNC using a Java-enabled browser

As an alternative to using the VNCviewer, you can also access the remote PC from any standalone Web browser that supports Java, like Internet Explorer. All that's needed is the machine name/IP address and the port (by default, this is set at 5800).

GoToMyPC

Expertcity's GoToMyPC allows you to control your PC from a remote location anywhere in the world, as long as you have an Internet connection and a Web browser. What sets GoToMyPC apart from other PC-controlling software is that it is a service instead of a specific software.

The best part of this Web-based service is that, unlike with most other services, you do not need a permanent IP address for the computer you wish to have control over. Simply register with the service and download a very small client program that rests in your system tray. Since a static IP address is not required to use this service, it is ideal for people who need to access their PC but don't know the technical properties of the network to which it is connected.



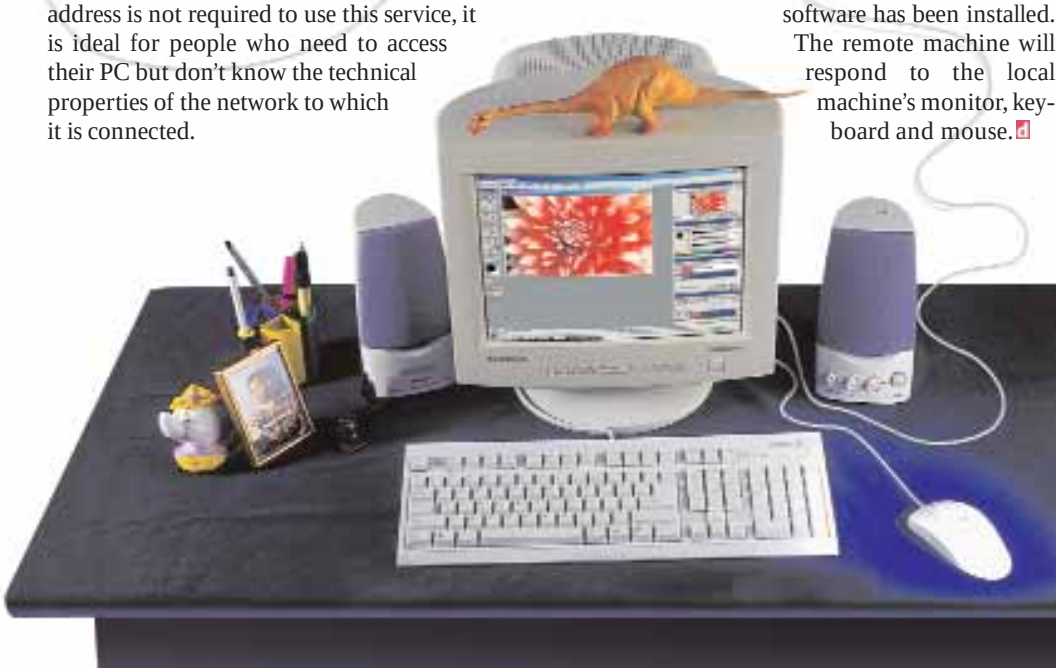
GoToMyPC with the MacOS desktop

Expertcity had originally started GoToMyPC to help out its technical support team, so that it could remotely help customers with their problems, without having to go on-site. But then, realising its potential, it made GoToMyPC a public service for anyone who wanted to connect to his or her PC from anywhere. Until May this year, Expertcity was offering the free beta version of GoToMyPC. But now the company has decided to charge a monthly fee of $19.95 for a single user.

Set it up now

Step 1: Log on to gotomypc.com. Register to set up your account. You will need to give your credit card information after which the GoToMyPC software will be downloaded and will assign the remote PC an access code, user name and password, which is chosen by you.

Step 2: From the local machine, log on to gotomypc.com. Hit the connect button next to the nickname of the remote machine. A tiny 200-KB plugin will be downloaded automatically. This plugin lets you connect via your Web browser to the remote machine on which the GoToMyPC software has been installed. The remote machine will respond to the local machine's monitor, keyboard and mouse.



Should I go in for GoToMyPC?

This, of course, depends on the kind of use you would have for a service like this and whether you are willing to pay for it. There are lots of useful things that GoToMyPC allows you to do. The draw mode lets you draw anything on the remote machine's desktop with the mouse. The in-built chat applet lets users talk. These could be immensely useful to technicians in highlighting areas of the screen and indicating things to the customer without being physically present.

A unique feature is the support for two-way file transfers. GoToMyPC does not use the conventional method of transferring captured video from the remote machine to the local machine. Actually, it uses a compression algorithm that efficiently transfers data.

One of the biggest disadvantages of GoToMyPC is that it is dependent on the speed of your Net connection. Even at 56 Kbps, there can be up to a 30-40 second lag between the two machines. Also, it only supports the Windows platform, though plans are underway to release a cross-platform version.

Another consideration is security. Even though it provides 128-bit encryption, it is not as secure as software such as Symantec's pcAnywhere. So companies that have highly sensitive data might not want to go in for this service.

On the other hand, it is a boon for people who have round-the-clock access to the Net at their workplace and need to access their machines regularly from home or while they're on the move.

THE LONG and SHORT of it

Everyone's getting on to the SMS bandwagon—here's how you can join in the fun!

ANIL PATRICK R.

If 'expensive teeny-weeny messages that yuppies send back and forth on their mobiles' is what you think SMS (Short Message Service) refers to, then you're only partly correct. You can easily send an SMS text message to your friend's mobile even if you don't have one. And the story doesn't end with text messages on mobiles!

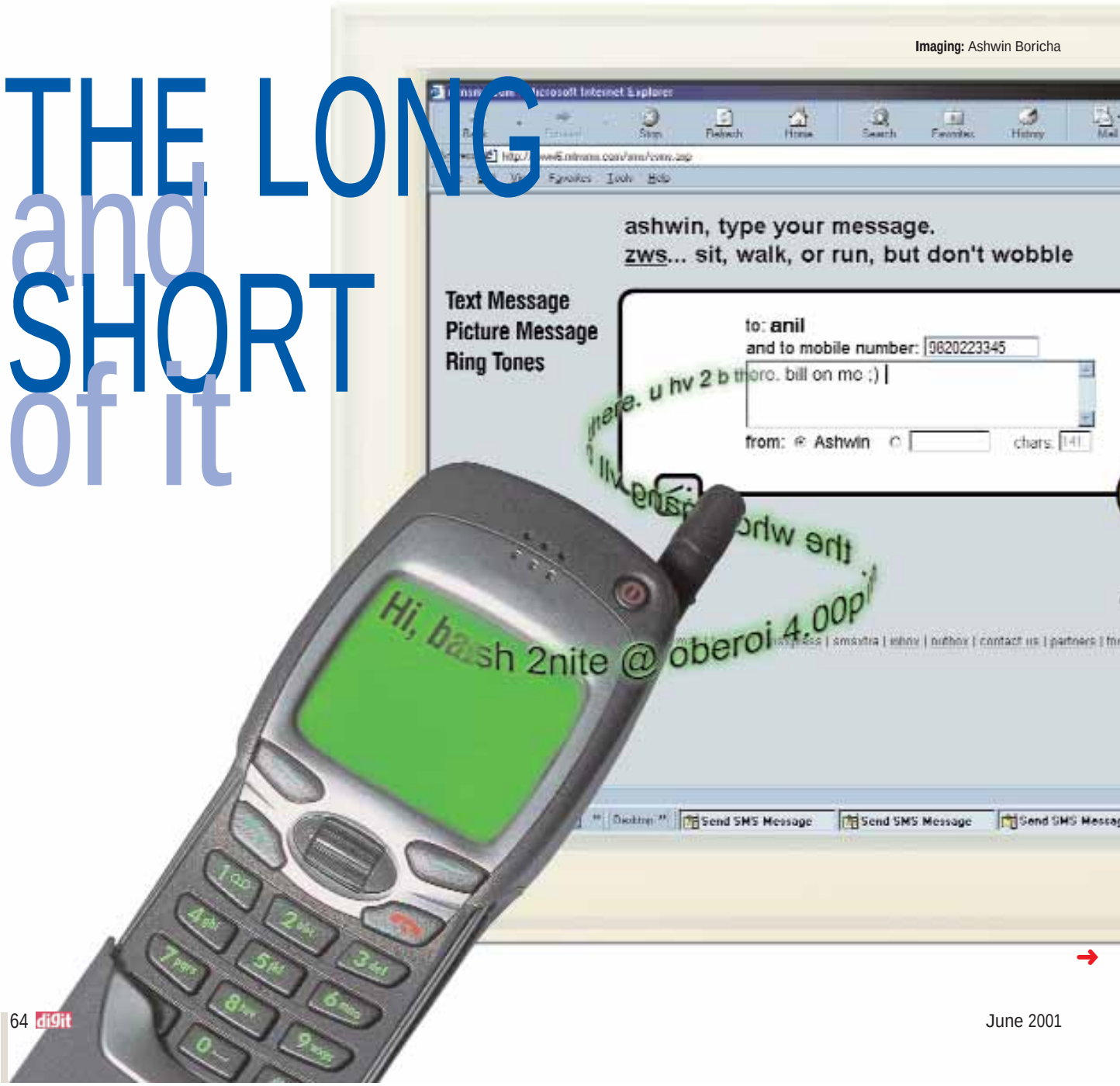
Getting on the SMS highway

Get the basic information on the required tools. For this, check out the box, 'SMS Funda Pack'. Okay, now that you have the basics right, you can choose how you want to send the SMS. Do you want to send the message from a Web site or would you rather use your trusted instant messenger (IM)? Both these services have their pros and cons. Web sites offer features such as tracking whether or not your SMS has been delivered. However, there is always the risk of your cell phone number being marketed. IMs are generally more secure when it comes to this aspect. However, most of them do not have tracking features—you have to rely on providence with most IMs.

SMS via e-mail

Nowadays, most cellular operators allow e-mail messages to be sent to users. The usual e-mail address of the user is in the form, number@provider.com. For example, if you want

Imaging: Ashwin Boricha



SMS Funda Pack

Hold on for a moment before sending that SMS! First ensure that the cell number of your friend is in the international cellular number (more accurately, SMSC number) format. This format includes a two-digit number that you have to add before the mobile phone number to which the SMS has to be sent. For Indian SMSCs, you have to type +91 followed by the mobile number. Some of the SMSC numbers of Indian mobile services will look like the following after conversion:

BPL Mobile:
+919821000005
MAXtouch India:
+919820005446
Essar Cellphone:
+919811009998
Tata: +919848001104
Command:
+919830099990

If you plan to use free SMS Web services, certain requirements need to be met. First of all, you should have a PC with Internet access. It also helps if you have a mobile phone as many of the sites require you to have a mobile phone for registration.

to send an SMS to an Orange mobile number, say, 982017XXXX, all you have to do is send an e-mail to 982017XXXX@maxtouch.co.in. The biggest problem here, of course, is that you would need to know the mobile service provider of the recipient as well as his e-mail address in order to successfully send your message.

SMS via Web sites

Another alternative is to use Web sites that provide free SMS messaging facilities. Some of the free SMS Web services that offer these facilities are www.mtnsms.com, www.hooya.com, www.voicestream.com, and www.blueskyfrog.com. MTNSMS is absolutely free, with no strings attached (*see box, 'MTNSMS–Swift and Simple'*). VoiceStream and BlueSkyFrog have limitations in the form of points for using their service. For additional SMS services such as ring tones, you have to pay for additional points.

Sending SMS using IMs

In case you haven't noticed, many IMs such as MSN Messenger and ICQ offer SMS messaging services. MSN Messenger offers SMS services as standard, but the person to whom you want to send an SMS has to have an MSN passport and enable the option for you (or anyone else) to send messages to his mobile. All that you then have to do is to right-click on the name and select Send a message to a Mobile device.

To enable other people to send SMS via MSN Messenger to your mobile, go to Tools, select 'Send a Message to a Mobile Device', and then click on 'Edit my Paging Settings' or 'Setup my Pager Address', depending on the version of MSN you are using. Register your mobile device, after which you will be sent the authorisation code. Enter the code and then proceed to personalise your settings using the Phone preferences. Fill in the numbers and click on 'Go to

Operation of SMS Web Services

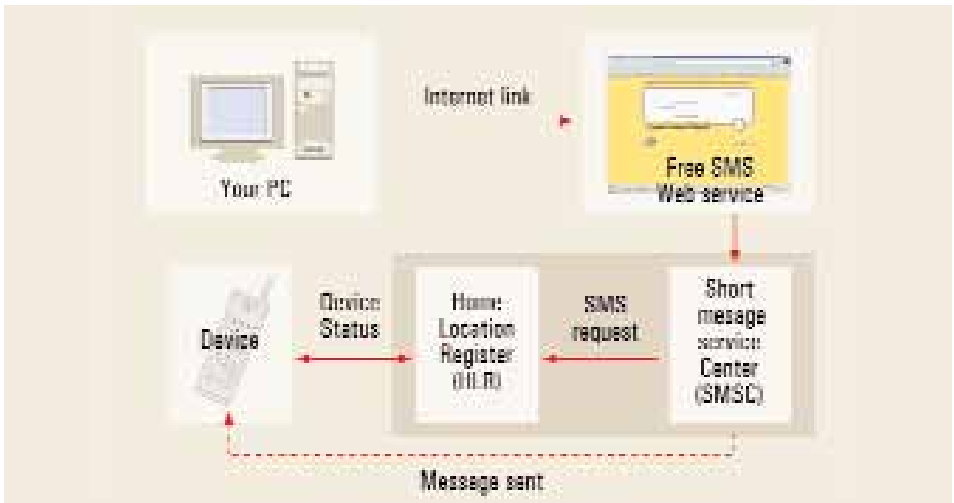
Short Message Service (SMS) is defined as the transmission of short text messages to and from a mobile phone, fax machine, or an IP address. These plain text messages have a maximum limit of 160 alphanumeric characters, and cannot have images or graphics.

Let's consider that a message has been sent from a Web site or application that offers SMS services. The message is routed by the service to the user's cellular network. It is received by a Short Message Service Centre (SMSC), which directs the message to the recipient's cell phone.

The SMSC sends an SMS request to the Home Location Register (HLR) to find the roaming customer. Once the request is received by HLR, it responds to the SMSC with the subscriber's status (active or inactive) and roaming location. If the status is inactive, SMSC stores the message for a specified period of time. When the device is active, the HLR sends an SMS notification to the SMSC, which then tries to deliver the message.

SMSC uses a Short Message Delivery Point to Point format for transmission of the message to the serving system. The system contacts the mobile and if it responds, SMSC tries to deliver the message. When the message is received by the user, it is categorised as 'sent' and is not sent again.

And if you have a mobile, the moment you receive an SMS message, you get two short beeps (or any other sound that you may have pre-configured), to indicate that you have received an SMS message. So, go ahead and read that message.



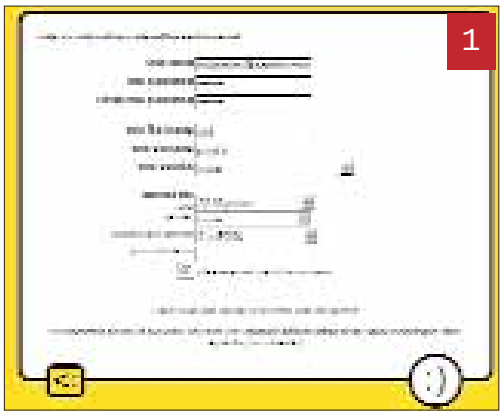
Infographic: Jaya Shetty

Find it on digit interactive
Whitepapers on Wireless Technologies check out **Mindware**

MTNSMS—Swift and Simple

MTNSMS, one of the foremost Web sites offering Web to mobile SMS services, is very simple to use. Log on to www.mtnsms.com and register.

Click on the join us button for the registration form.



In the registration form, fill in details such as your e-mail ID and personal information (see Fig 1); the mobile number field can be left empty. Clicking on the smiley button ensures that your confirmation code is mailed to your e-mail address, on receiving which you can start firing off your SMS messages.

Sending an SMS using MTNSMS is very simple (see Fig 2). Select the smsxpress link at the bottom of the page if you're in a hurry. Type the mobile number to which you want to send an SMS message in the mobile text box. Ensure that the number is in the international format. You can convert Indian cellular numbers to this format by adding +91 before the number. For example, if the mobile number is 982017XXXX, in the international format it becomes +91982017XXXX.





Enter the message in the text box. Take care that the message does not exceed 160 characters—the counter will help you while doing this. Press the smiley and your SMS is sent.



Tracking your e-mail can be done using the track it here link in the page that comes next (see Fig 3).

You can see all the messages you send as well as the messages that you forward to other numbers in your message outbox (see Fig 4).

MSN Mobile', which will take you to the MSN Mobile Alert Settings page. Select the Add button next to Instant Messages, which will take you to the Instant Message Alerts page. Select the 'User & Device information' link to fill in your mobile number and other information, and voila! Your friends and colleagues can now send messages to your mobile using MSN Messenger. MSN Messenger also allows you to send news, sports updates, etc, to a mobile phone for free.

Sending SMS with ICQ is really easy. All you need to do is click on the ICQ SMS icon below the ICQ tool bar. ICQ offers three options for sending SMS to your friends—via ICQ, Web, or e-mail. Select the preferred mode and start sending out your messages.

More than just SMS

There are free Web services on the Internet that offer news, sports updates, free icons, logos, and even horoscopes (*see box, 'Operation of SMS Web Services'*). And, of course, SMS chat. You also have free Web services that enable you to download ring tones (yes, you can get the theme of *Mission Impossible* as your ring tone to replace that monotonous beep).

For free ring tones, logos, horoscopes, etc, there are several sites such as www.texer.com, www.boltblue.com, and www.yourmobile.com, although some of these sites require you to register. You need to have an Internet-enabled cell phone for downloading ring tones directly. It's also possible to download the tone directly to your PC and transfer it via the infrared port of your PC to the cell phone. In order to do this, though, both your cell phone and PC should have infrared ports. So are you ready to get those services going?

The hidden thorns

Other than getting addicted to SMS (and it is highly addictive!), there are some other points to be considered. A major limitation is that SMS allows only a maximum of 160 characters in a message, and sometimes even less. If a message is longer than 160 characters, it is sent as multiple messages, which might involve a loss in transit.

Whenever you use a Web site to send an SMS, you essentially provide the site with your cell phone number. This could make you a target for spam.

Cellular phones provide advertisers an opportunity to contact people with location- and user-sensitive advertisements. With wireless Internet becoming increasingly popular, advertising on mobile devices is going to become widespread two or three years down the line and you may well be bombarded with advertisements on everything under the sun.

This is a worst-case scenario, though, and there's no need to get paranoid now. Most of these advertisements are likely to be of the 'opt-in' type, which means the user will be offered the option of receiving or rejecting them. No advertiser would want to have a user filing a case against him for spamming. So set your worries aside and get onto the SMS bandwagon.

Troubleshooting

Find it on digit interactive

Troubleshooting

FAQs and tips for registry editing check out

Mindware

Problems with installing Windows Me, printer not being detected, converting PDF files to word, configuring a modem in Linux...solutions to these and other problems

Applications

Voice error

Whenever I open IBM ViaVoice 98, it gives me the following error, 'VOICEPAD caused an invalid page fault in module MFC42.DLL'. How do I get rid of this message?

Kovid,
via e-mail

Rx This error could occur because the mfc42.dll file is missing, corrupted or it's the wrong version. This file is required by many applications and usually most applications come along with their own copy of the file, which is placed in the Windows\System folder, thus causing problems for other applications.

To fix this problem, the file required by Voice Pad should be placed in the ViaVoice directory. You should follow these steps: Make sure that you can see all the files (hidden as well as system) in your system. Then rename mfc42.dll in C:\Windows\System to mfc42.dll.old. Reboot the system before this step to ensure that no program is using this file. Next, reinstall ViaVoice. Now you will find a new copy of mfc42.dll file in C:\Windows\System. Copy this file to the viavoice\bin directory. Finally, rename the mfc42.dll.old file back to mfc42.dll in C:\Windows\System. This should get rid of the error.

Linux

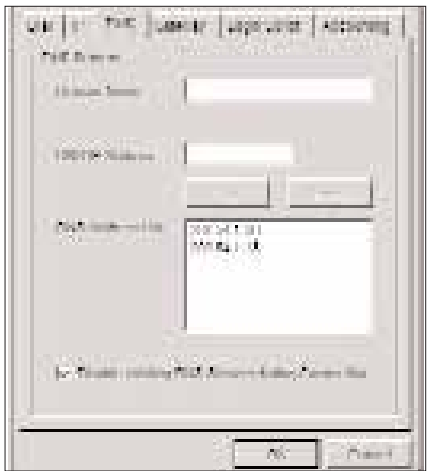
Modem in Linux

How do I go about configuring a modem in Linux Red Hat 7.0?

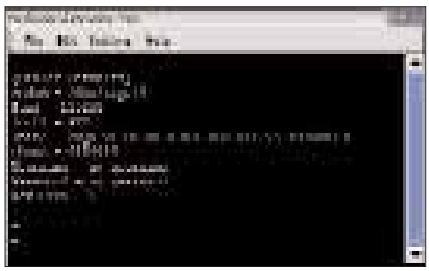
Aji,
via e-mail

Rx Configuring a modem under Linux is pretty much the same as it is in Windows. All you need to know is which port it is installed on.

A point to note is that COM1 in Windows is ttyS0 in Linux, COM2 is ttyS1, and so on. Once you figure this out, you should symlink this device to /dev/modem, so as to avoid confusion later on. Use the command ln -s /dev/ttyS0 /dev/modem.



Disabling existing DNS servers in Kppp



Configuring wvdial

Now you could use any one of the diallers that are available in Linux. One of the best utilities is Kppp, which is very easy to configure. Those who like command line utilities could use wvdial. To configure wvdial, you need to use the command wvdialconf /etc/wvdial.conf. You have a host of configuration options for wvdial. You should see the man pages for wvdial for more information. Also note that if you are using utilities like wvdial you will have to set the DNS server to that of your ISP. This can be done using netconf. This can be avoided if you are using Kppp, as it has the option of accepting your ISP's DNS server in its configuration, with your current DNS server being disabled.

Windows

Me doesn't install

Whenever I try to install Windows Me on my Windows 98SE, setup runs well till ten per cent of it is complete but then it shows the following message, 'Setup cannot copy the files to your system. error-Suo325.'

Ibadat,
via e-mail

Rx This problem arises when a corrupted .cab file has been copied to the hard disk. This corruption can be caused either by a virus or by failing hardware, but the most likely reason is a scratched, dirty or damaged CD-ROM. Try cleaning the CD-ROM or replace it. Also make sure that your PC is not infected by a virus. If this does not help, you need to check the possibility of failing hardware.

Linux

Of native and swap partitions

I recently upgraded my system to a 20 GB HDD. I have five disk partitions that contain 3.99, 3.65, 3.65, 3.65 and 3.64 GB, respectively. I would like to install Red Hat Linux 6.2 in the last partition of 3.64 GB. But when I run the Linux setup and allocate swap and native partitions, it says, 'Boot Partition too big' and does not allocate the native partition, although it does allocate the swap partition. What should I do?

Hariharan,
via e-mail

Rx This is a common problem when the hard disk size is too big. The error occurs when the boot partition falls outside the 1024 cylinder area of the hard disk. You should try the following. Delete all the partitions that you have made for Linux, that is, swap partitions. Then make a /boot partition of around 10-16 MB of Ext2 type. Now go ahead with making all the other partitions, namely, the /Linux Ext2 type and the swap partitions. This should solve the problem.

Hardware

Printer problems in Win Me

I am using Windows Me. The problem is that when I connect my printer on the USB port, Windows does not detect it. If I use the Add New Hardware wizard, it still does not detect it. Please tell me what to do.

Anoop,
via e-mail

This problem occurs if the printer was previously installed, or if an install was attempted and did not finish for some reason. In this case, when you attempt to reinstall the driver, the 'Add New Hardware Wizard' does not appear again.

To solve the problem, you need to uninstall the printer first. Download and execute the USB supplemental uninstaller from the manufacturer's site. This will uninstall the printer from your system. After the system restarts, you will be able to install your printer successfully.

Applications

From .pdf to .doc

To convert .pdf format files to Word document files, I use the Copy & Paste method. The problem is that the formatting gets lost. This is especially troublesome when tables are involved. Is there any way in which this conversion can take place without the formatting getting lost?

Arun Sinha,
via e-mail

Rx You cannot convert .pdf files directly to .doc files. However, you can use tools such as BCL Drake (available at www.zdnet.com/downloads/). This tool allows you to convert .pdf files to .rtf files. If this is an online document, you can also convert it to html format, using the Adobe PDF conversion form available at http://access.adobe.com/simple_form .html.

Windows

Defrag will not read

I have a Pentium 90 MHz PC. I have been experiencing trouble with the Disk Defragmenter in Windows 95. After checking the drive for errors, a message comes up that says, 'Windows could not access part of this drive, ID No. DEFRAG006'. It also suggests using Scandisk, which I did with the Thorough option enabled. Scandisk could not find any errors on the disk. What could be the problem?

Rupak Ranjan Roy,
via e-mail

Rx This error occurs when Disk Defragmenter is unable to read from or write to one or more bad sectors on the hard disk. The error ID is DEFRAG005 when Disk Defragmenter is unable to write to a sector and when it is unable to read from a sector, the error ID is DEFRAG006. To fix the problem, you need to run Scandisk with the Thorough option enabled, as you have already done. Since you have not found any bad sectors and the problem is not yet fixed, you need to configure Scandisk to detect disk timeouts and check each cluster five times while performing a surface scan. To do so, you need to do the following:



Editing the Scandisk.ini

Use Notepad to open the Scandisk.ini file, present in the Windows\Command folder. Create an [Environment] section in the file, if the section does not already exist, and then add the following lines to the section, if they don't already exist:

```
ScanTimeOut=On
NumPasses=5
```

Save and then close the Scandisk.ini file. Restart the computer in MS DOS mode and then click Yes.

Type the following line:

```
scandisk C:
```

Then press [Enter] to run Scandisk.

You should run a surface scan when Scandisk prompts you to do so, and repair any errors that it finds. You can then start your PC normally and run Disk Defragmenter. This should solve your problem.

Windows

Unwanted affection

I work on a network and of late, many of the applications on my system do not work. My system has also become slow and crashes often. I scanned my system with an antivirus software, and found that the system is infected with the Funlove virus. How do I get rid of it?

Vinay Raj,
via e-mail

Rx W32.Funlove.4099 is a virus that works on a network and affects .exe, scr and .ocx files on Windows 95, 98, Me, NT and 2000 systems. It corrupts most of the Windows applications and causes the system to crash often. To get rid of this virus, you need to download the virus removal tool that is available at www.symantec.com/avcenter/Fixfun.exe

You need to copy this file to a DOS bootable floppy, and then run the tool as follows:

```
fixfun /a
```

This will scan the files on your hard drive and repair any file found to be infected with the virus. Instructions for removal, for all versions of Windows, are also available at www.symantec.com/avcenter/venc/data/fix.dos.funlove.4099.html



Illustrations: Farzana Cooper

Hardware

BIOS updates

I have a computer with a P-III 800 MHz processor and an ASUS CUV4X motherboard, with Windows 98SE installed. I get an error sometimes that says, 'BIOS Data Update Not Correct Cpuid 000000586'. Please tell me what it means and how to fix it.

Rajesh,
via e-mail

Rx This message is from the BIOS Update data file located in the motherboard BIOS. To make sure your PC does not continue to display this message, you must run the ➜

BIOS update utility. You need only run this program once. This utility will load the correct data file for the steppings of the processor so that the correct data file is available. If you do not have access to the Update utility program, then it is possible to update your system BIOS from the Asus site (www.asus.com).

Applications

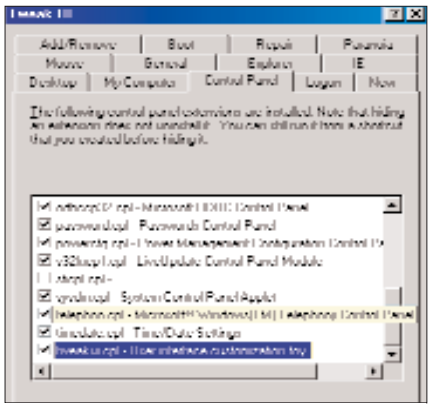
No icon, no access!

I downloaded and installed TweakUI from download.com. It was working nicely till I removed its icon from the Control Panel. Now, since there is no TweakUI icon in Control Panel, I can't run it, nor can I do or undo any changes, as I just don't have access to it. Uninstalling and reinstalling did not work.

Donnir,
via e-mail

Rx Icons in Control Panel are controlled by the .cpl files. TweakUI allows you to hide these icons from the Control Panel. The problem is that it does not prevent you from hiding its own icon.

However, here's what you can do to fix this problem. Go to Start > Find > Files and Folders. Here, enter *.cpl and click OK. You should get a list of cpl files. Find TweakUI and right-click it. You should find an option, 'Open With Control Panel'. Selecting this option will open TweakUI. Then click on the Control Panel tab and click on the TweakUI checkbox. This should solve the problem.



Check the TweakUI box to make it show up in Control Panel

Windows

Wipeouts

Windows Me has an excellent facility called System Restore. However, when I opt to restore my system to any previous date, the computer wipes out any programs or applications that might have been installed after the restore date. Is there any way to disable this wiping out of applications installed after the 'restore date'?

Doc Lawrence,
via e-mail

Rx The System Restore feature actually restores the system to the last snapshot taken by Windows Me. It deliberately does not install the applications that were installed after this time, because they might have caused the system to crash. Windows Me takes these snapshots at some intervals, or at the time specified by the user.

You can disable the option completely, but there is no way you can disable it from only wiping off the applications. However, here is what you can do. You can get Windows Me to take a snapshot of the system just before you install an application, and if it works fine, take another one after the installation.

Internet and communications

Modem queries

I have a 28.8 Kbps internal modem. When I double-click on 'modem' in the system tray to see its data transfer rate, it gives the number of bits or bytes received and sent. My questions are as follows:

1. When I am browsing any site without sending any data to it, the modem lights still blink, indicating some bytes are being sent. Please tell me what this information is about?

2. Though the maximum speed of the modem is 28.8 Kbps, sometimes the data transfer rate is large such that it reaches 11500 bps (that is 11.5 Kbps) and sometimes as low as 2 KBps. How is this possible?

Manty,
via e-mail

Rx The modem light blinks as there is some data transfer that is taking place on your machine. If the page you are browsing contains ads that change dynamically, data transfer takes place when these ads load.

This could also be due to an instant messenger that is running, a download in progress, or even some backdoor or a virus. You can use the command, netstat, in DOS to check what ports are being used in your machine.

Secondly, you have the date transfer rate wrong as you are mistaken between the bauds, bits and bytes of the modem. Your modem speed could either be said to be 28.8 kilo bauds per second or 28.8 kilobits per second.

A baud is the number of signalling elements that occur each second. This is approximately equal to the number of bits per second. Now, 1 kilobit in communication terms would be 1024 bits (2^10), while a byte equals 8 bits.

Your data transfer speed reaches speeds of 11500 bits per second, that is 11.5 Kbps to 2 Kilobytes per second, which translates as 16 Kbps. Hence, the data transfer that is taking place is not from a minimum of 2 KBps to 11.5 Kbps, but from a minimum of around 11 Kbps to a maximum of 16 Kbps.

Windows

Unsent mail

I am unable to send any messages through Outlook Express. My default mail handler is cal2.vsnl.net.in. I receive the following error message, 'The message could not be sent because one of the recipients was rejected by the server. Subject', Account: 'cal2.vsnl.net.in', Server: 'cal2.vsnl.net.in', Protocol: SMTP, Server Response: '550 <my_email_address>... Relaying denied', Port: 25, Secure(SSL): No, Server Error: 550, Error Number: 0x800CCC79'.

A.G. Krishnan,
via e-mail

Rx This error, which is usually random, means that your SMTP server is checking whether the recipient name actually exists before sending your mail. If the recipient's mail server is down or unavailable for some reason, your SMTP server cannot verify the address and may reject the relay. If this is the case, the message will be sent when the receiving server is again available. You actually cannot do anything about the error as this is usually a problem with the ISP.



Windows

Driving slow

My computer, with Windows 95 installed, has become very slow. When I run my computer in safe mode and open the system icon in the Control Panel, in the Performance tab, I see the following errors:

1. "Compatibility mode paging reduces overall system performance. Windows was unable to identify a real-mode driver or memory-resident program loaded in your Config.sys or Autoexec.bat file.

You will see another message that lists the name of the driver or program causing the problem. Because Windows could not identify the driver or program, it has switched to MS-DOS compatibility mode to ensure the program will run.

However, this slows down overall performance. To improve performance, remove the program or driver causing the problem, or contact its manufacturer for an updated version."

2. "Drive X: using MS-DOS compatibility mode file system. This problem often occurs on more than one drive. Usually it is caused by a driver in Config.sys that Windows doesn't recognise, and is related to the problem 'Compatibility mode paging reduces overall system performance.'

If you also see that problem, see the Help for that problem first. If you only see this message on one drive, that drive is using an MS-DOS compatibility (real-mode) driver, which may slow down access to that drive.

Contact your hardware manufacturer to see if an updated driver is available for your drive. If not, the drive may work more slowly than is optimal, but you can still use it."

Munish,
via e-mail

Rx Windows 95 uses the MS-DOS compatibility mode when it is not using 16 or 32-bit disk access drivers. To fix the problems, you could try the following:

Go to Start > Run. Type regedit and click OK. In Registry Editor, click on Edit > Find. Type noide and click on Find Next. Delete all the entries that you find. Reboot the machine.

If this does not work, go to Start > Settings > Control Panel > System. In the Device Manager tab, check if the Primary and Secondary IDE channels have any conflicts (exclamation marks next to them). Select Standard IDE/ESDI Hard Disk Controller and click Remove.

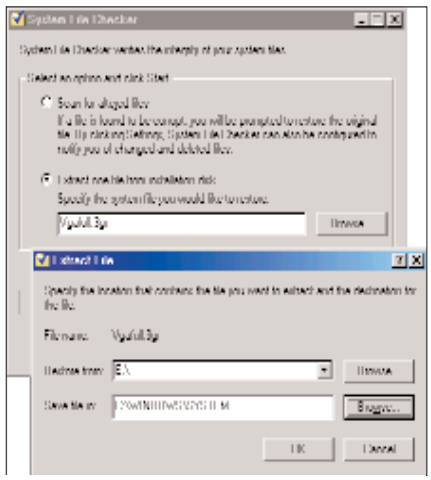
Reboot the system. Windows should detect the Primary IDE channel. Don't allow Windows to reboot, and let it detect the Secondary IDE channel. Now continue to boot into Windows 95 and then reboot from the Shutdown menu. If this too does not work, you should format the hard disk and repartition using fdisk.

Windows

Truant files

I have a Pentium II 333 MHz, 48x CD-ROM system. When I try to play VCDs through Windows Media Player 7, it displays an error message, 'A device attached to the system is not functioning'. When I try to enter into MS-DOS prompt from Windows 98, I get a similar error message and another which says, 'The object that MS-DOS prompt refers has been unaccessible or removed'. What may be the error? How can I overcome it?

Sivapadmanaban,
via e-mail



Specifying the source and destination for the damaged or missing files

Rx It seems that you have a damaged or missing Vgafull.3gr file or Winoa386.mod file in the Windows\System folder. To solve the problem, you should rename these two files (use the Find tool) and extract the correct files using WinZip or System File Checker.

To open the System File Checker, go to Start > Run and type sfc; click on OK. Select the 'Extract one file from installation disk' radio button and type out the file you want to extract.

Clicking on Start will bring up a dialog box that will ask for the source and the destination of the file you are extracting. This should solve the problem.

Windows

Added options

When I right-click on Start, I can see the options Open, Explore, and Find in the context menu. Can I add more options to this context menu, which can open applications?

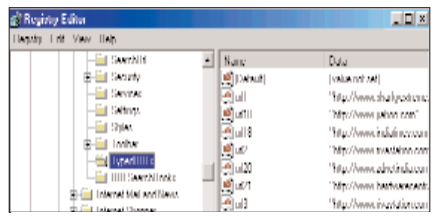
Satish and Sanju,
via e-mail

Rx Yes, you can add your own options in this context menu. To do so, open Windows Explorer. Go to View > Folder Options > File Types. Here, click on Folder and click Edit. Now click on New and specify a name for the action that would appear in the menu. Also specify the program that would execute this action. Click OK, and close. You will now see your own option in the context menu.

Internet and communications

Clear URLs

When you click on the drop-down button in Internet Explorer's address bar, you can see a



Deleting select URLs from Internet Explorer

list of all the URLs that you have visited. Is it possible to selectively clear URLs from this drop-down list? I do not want to get rid of all the URLs by doing a Clear History.

Gaurav,
via e-mail

Rx You can edit the registry to do this, or use software that allows you to do so. However, backup your registry before editing it. Here's what you should do: Go to Start > Run. Type regedit and click OK. Go to HKEY_Current_User\Software\Microsoft\Internet Explorer\Typed URLs\.

Here, you will find many URLs. Just select the ones that you do not need and delete them. Make sure that your IE is not running. Exit the registry and restart Windows. The URLs should be gone.

DO YOU NEED HELP?

Send an SOS to sos@jasubhai.com
Or write in to DIGIT, D-222/2, Om Sagar Bldg, MIDC, Nerul-400 706

tips & tricks

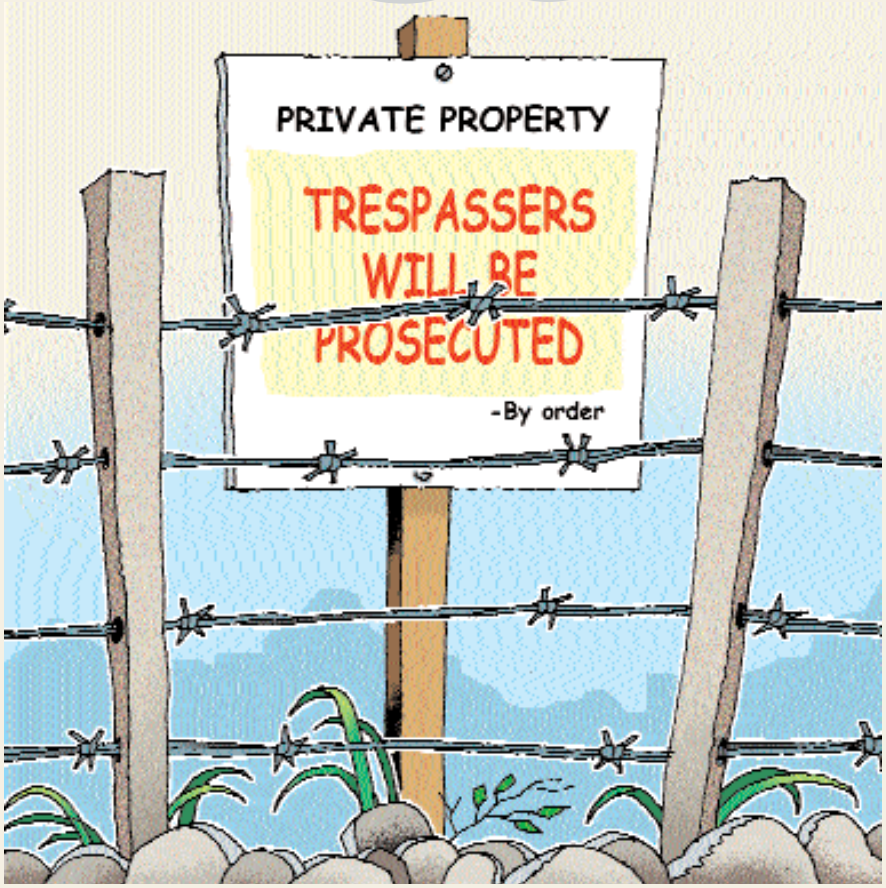


Illustration: Mahesh Benkar

UNBREACHABLE SECURITY

Denial of Service attacks, mail bombing, ping flooding...if these terms scare you, then it's time to take a few protective measures

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Find it on digit interactive

Tips & Tricks

All about Easter Eggs, check out **Mindware**

WORKING WITH WINDOWS

There's no understating the fact that most likely you are going to be working with one Windows operating system or the other. So, getting to know the OS is quite important

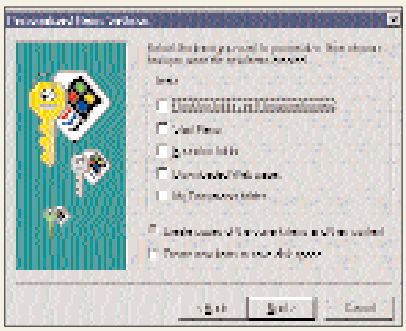
Windows 9x/Me

The most popular operating system is not that security conscious, but you can certainly tweak it to gain more control

Creating security policies

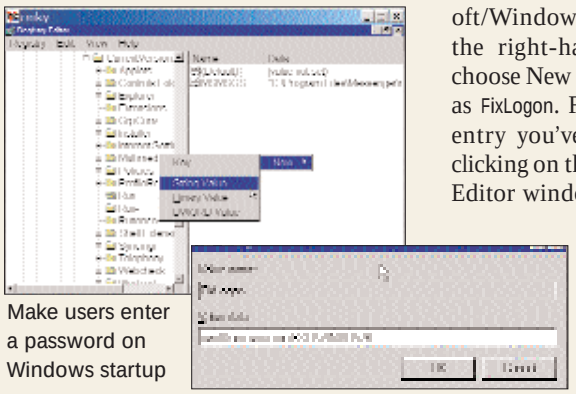
You can get a higher level of security with your Windows machine if you create user profiles on your PC. Go to Control Panel, double-click the Users option and follow the wizard to create a new user for the computer.

If you are using Windows 95, you have to select the Passwords option to go to the User Profiles tab. Enable users can customise the preferences and restart the computer. In the login window, type in your name and password, and Windows will prompt you for creating a new profile.



You can specify rights for individual users

Now, with user profiles created, you can use the System Policy Editor to restrict access to new users (or those who just hit the Cancel button at the login menu). Before using Policy Editor, back up your registry and other password files. Restart the computer, and at the login prompt, press Cancel. This represents a setting for an unauthorised user. Start the Policy Editor by typing poledit in the Run menu. Go to File > Open Registry and double-click on Local Users. Check or uncheck the various options to restrict access by an unauthorised user. Click OK when you are finished. The settings you choose are the ones a person will find when he logs in with a new name or hits Cancel at the login prompt. This can be a very stripped down version of Windows with no access to many of the settings or folders.



Make users enter a password on Windows startup

Forcing users to enter password during login

Unlike Windows NT/2000, the login window in Windows 9x/Me can be easily bypassed by pressing the [Esc] key or by clicking Cancel. So, it's possible that a third person who turns on your PC can gain access to your personal information. To prevent this from happening, first make sure that the user profiles are created and enabled for each user, and that the 'Include Start Menu and Program Groups in User Settings' option in the Control Panel is enabled for each user.

Reboot the PC in Safe Mode by hitting the [F8] key during Startup and choosing Safe Mode from the Boot Options. This is very important because if something goes wrong, you can always reboot your computer in the safe mode and rectify the problem.

Type regedit.exe in Start > Run. Find the following key in the Registry: HKEY_USERS/Default/Software/Microsoft/Windows/CurrentVersion/Run. In the right-hand pane, right-click and choose New String Values, and rename it as FixLogon. Finally, open the FixLogon entry you've just created (by double-clicking on the right-pane of the Registry Editor window) and specify the following command as its Value data: rundll.exe user.exe, EXITWINDOWS. Reboot your PC to save the changes. If you want to restore the old setting, delete this key.

Installing Critical Updates

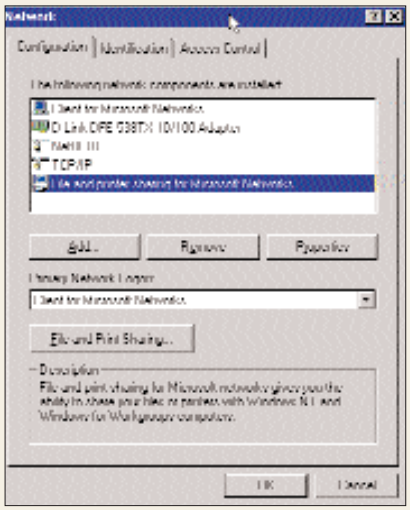
A feature that often goes unnoticed in Windows (and other applications too) is the update utility. Microsoft uses the term 'Critical' updates for patches and bug fixes related to your operating system, though sometimes these may be for other applications too. While you can go and individually download the updates from Microsoft's Web site, you can do the entire thing in a faster manner by just clicking on the Start menu and selecting Windows update. This ensures that you get the entire database of updates in some central location. It's not necessary that you install each and every update, especially if you have not been facing any problems. And the latest updates for Outlook Express have made it extremely restrictive. But, do select the updates that fix any exploits to your browser or operating system and install them.

Disabling sharing

If your machine is part of a network, you need to configure it for file and print sharing so as to enable other people on the network to access your shared folders and printers, and to allow you in turn to access their resources. But most intrusions are done using this exploit to gain access to your machine.

On the other hand, if you have a standalone machine, then there's no reason

Ad will come



Disable file sharing

why file and print sharing feature should be enabled. To disable it, open Control Panel and double-click on the Network icon. You will see a list of installed protocols, including 'File and Print Sharing for Microsoft Networks'. Click on File and Print Sharing, then click Remove, and finally click OK. Reboot your PC to save the changes.

Unbinding NetBIOS to TCP/IP

By default, NetBIOS is bound to TCP/IP protocol, and therefore it is possible for outside intruders to access your file shares. You can prevent this by unbinding NetBIOS to TCP/IP. Firstly, you need to have NetBEUI installed along with TCP/IP. (Install NetBEUI from the Protocols options in the Network Configuration menu). Now, select the Dial-up Adapter that you use to connect to the Internet, and click on Properties. Go to the Bindings tab, and uncheck all the boxes except for the TCP/IP Dial-up Adapter. Click OK. Now, select TCP/IP > Dial-up Adapter, and click on Properties. Ignore any warning messages, and click the Bindings tab. Uncheck all the boxes present here, and click OK. You will get another warning message, but click No at this juncture. Close the Network properties menu and restart the machine. This will result in NetBIOS being unbound to TCP/IP and you no longer have to worry about your file shares being accessed over the Net.

Enabling file extensions

By default Windows Explorer hides file extensions for known file types, and this includes the .vbs extension which is also used to create many of the malicious scripts. Therefore, it's quite possible that you might receive an attachment in your e-mail with the actual file name as goodimage.jpg.vbs, but since the .vbs is a known file extension, it gets hidden and you perceive the file name as goodimage.jpg and since .jpg files are non-executable you open it. This could cause the Visual Basic Script to execute whatever code is written in it (provided you have Active Scripting enabled). To


Uncheck the option to hide known file extensions

prevent this from happenning, go to the Explorer Window, select Tools > Folder Options, click on the View Tab and uncheck the 'Hide file extensions for known file types' option.

Scraping past security

What happens when you try to paste, say, the contents of your Word document into the Explorer folder? You get what is known as a scrap document or scrap object, which is basically a wrapper for OLE data. Double-clicking on the scrap file launches any program that may have been defined in the properties of the scrap object. The scrap object icon is quite similar to the icon for a text document, and even if Windows Explorer is configured to show all extensions, it hides the .shs extension that is associated with a scrap document. So, you can easily end up opening an e-mail attachment, say, goodstuff.txt.shs (which only gets displayed as goodstuff.txt), and invoke a malicious command (such as opening some file or running the format command) associated with that scrap object.

To prevent this, you have to modify some settings in the registry. Back up your registry before you proceed. Type regedit in the Run menu, and go to HKEY_CLASSES_ROOT\ShellScrap. Locate the NeverShowExt value in the right-hand pane and then delete this value. Adopt a similar procedure for the value under HKEY_CLASSES_ROOT\DocShortcut. Now, all that's left to do is change the icons for the scrap object so that they don't resemble the text icon. Go to Windows Explorer > Tools, click on the File Types tab and select the .shs extension. Click on Advanced, and then on Change Icon. Browse to the pifmgr.dll file, and select one which presents the warning signals or the dynamite or shield, so that you know there's danger associated with such file extensions.

Changing default locations

Many intrusion attempts and malicious Web sites look at specific directories for certain files. This is done on the assumption that the software will usually be installed in the default locations. For example, Windows will most probably be in C:\Windows and other applications will be within the C:\Program Files folder.

Wherever possible, don't use the default folder and change it to some other name. This will make the task of whoever is trying to pry into your system all the more difficult.

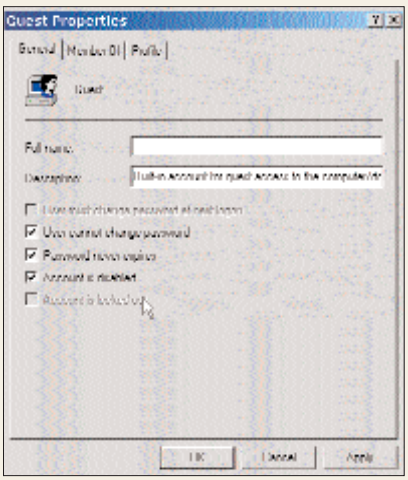
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Windows NT/2000

Windows NT/2000 offer a more secure environment, though a few exploits can let other users gain access to your machine. Here's how to plug those holes

Restricting guest access

Unauthorised users can access your Win2K PC by specifying Guest in the logon window. To disable the Guest account, open Users and Passwords from

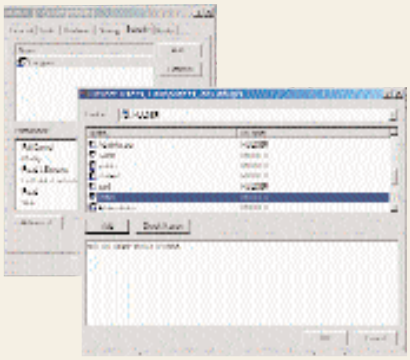


No Guests please!

the Control Panel. Click on the Advanced button twice to display the Local Users and Groups window. In the left pane, double-click on Users. Here, right-click on Guest and choose Properties. Once there, disable all options by clicking in the check box against each.

Encrypting and securing drives

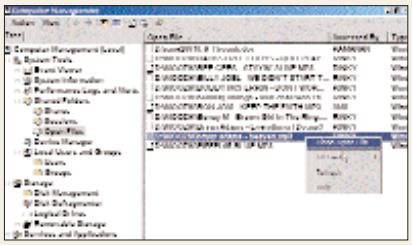
In Windows 2000 or NT, if you are using the NTFS file system for a drive, you can restrict access to selected users. To secure your drive, right-click on the NTFS partition and choose Properties to display the Drive Properties. Click on the Security tab and then click on the Add button to display the 'Add Users, Computers or Groups' window. In the upper part of the window, click on the users you want to allow access to and press Add. Repeat this if you want to add more than one user.



Encrypt drives for greater security

Watching your shares-I

If you have kept some important documents for, say, your boss in one of your shared folders, then someone else who isn't supposed to read that can open it if you haven't set the right permissions. Unlike Windows 95/98, Windows 2000 allows you to close the files that have been opened by unauthorised users without unsharing the folders that contain them. To do this, right-click on the My Computer icon on the desktop and choose Manage. In the window that

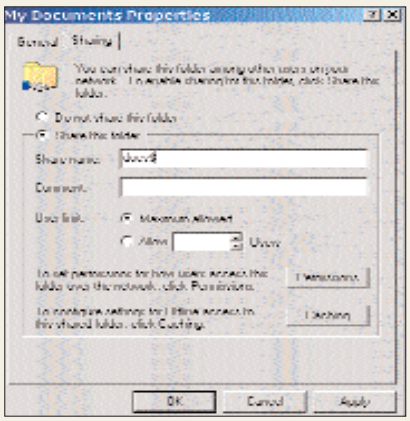


Close unwanted network connections

opens, click on Shared Folders and then on Open Files. In the right pane you should now be able to see all the files from your machine that have been opened by various users. Simply right-click on the file that you want to close and choose Close Open File.

Watching your shares-II

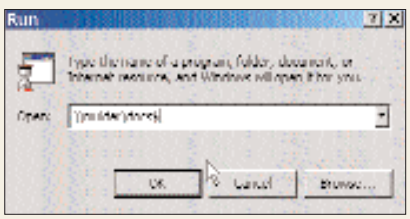
The above method is quite effective, but the unauthorised user can again open the same file if he wants to, because the folder that contains the file is still shared. Use the following method to share folders selectively—it ensures that only the person who knows the exact name of the folder can access it. Open Windows Explorer and click on the folder you want to share. Now right-click on it and choose Sharing to display the properties window for that particular folder. Click on the check box against 'Share this folder'. In the Share Name option, put any name and add the '$' sign at the end. For example, you can give the share name 'DOCS$'. Now, if you want your boss to read a



$ is the key!

document in that folder, just tell him to access it using the Run menu and not through Network Neighborhood because folders that are shared using the '$' technique can only be accessed through a Windows command line like the Run menu.

In the Run menu your boss will have to type \\machine name\DOCS$. To check whether you have done this correctly,



Access $ folders using command line

type \\machine name with and then without the folder name. In the first case, you will see the folder while in the second case, you will not.

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Your browsing activity and the configuration you have selected can, to a large extent, define the security levels that you enjoy. Configure it right for safe surfing

Internet Explorer 5 and 5.5

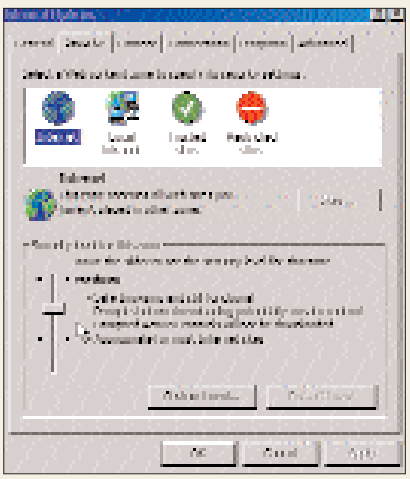
Internet Explorer is the most popular browser and therefore majority of the exploits are targetted towards it. So, you definitely need to be more cautious

Deleting cookies

Many Web sites drop little files onto your system that let them keep track of your passwords, and the date and time of your visits. To get rid of these files, delete the contents of the Cookies folder and the Temporary Internet Files folder in your Windows directory (but not the folders themselves). This will remove all traces of your surfing pattern. You could also use a third-party cookie cleaning software such as Cookie Crusher.

Working around cookies

Adjust IE's security settings to keep random Web sites from sending cookies to your hard drive or uploading ActiveX Controls. To do this, select Internet Options from the Tools menu, and click on the Security tab. Slide the bar under 'Security level for this zone' up or down to increase or decrease the security level. Each level (High, Medium, Medium-Low, and Low) lists exactly which actions and applications it allows or blocks. It is better to click Custom Levels, and then select to prompt for cookies that are stored on your computer and per-session cookies. This allows you to control which sites you want to allow cookies. Remember though, that some sites may not work properly if cookies is disabled. In addition to this, you should also disable ActiveX, since this can pose a serious security hazard.



Adjust security settings to block cookies

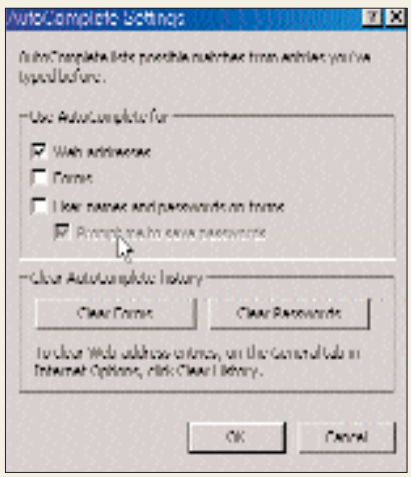
Disabling Windows Scripting Host

Internet Explorer installs Windows Scripting Host by default, and this is used to run VB scripts that may contain viruses or Trojans. To remove Windows Scripting Host, go to Control Panel > Add/Remove Programs > Windows Setup. Select Accessories and from there uncheck Windows Scripting Host. You can also go to the Folder Options in Windows Explorer, and select the .vbs file type and remove it.

Disabling AutoComplete

The AutoComplete feature may be useful while filling out forms and usernames, but it also allows other users to know your username and then probably guess your passwords. When the AutoComplete function is active, some sites, search engines and entry fields retain the words you've entered, so anyone who uses the browser after you and visits that site can see the entries you made.

To turn off this feature, in the Internet Options dialog box, click the Content tab. Next, click the AutoComplete button in the Personal Information section to display the AutoComplete Settings window. Uncheck the 'Forms' and 'Usernames and Passwords on Forms' boxes.



Tame Auto-Complete to ensure privacy

Deleting History items

The History folder stores a record of all the Web sites you've visited. This is very convenient, but then your boss, friend, or colleague can easily find out what you've been surfing. Here's what you can do to get rid of unwanted URL histories: in Internet Options under the General tab, find the History section and click the Clear History button. Repeat this before you close the browser. Set the 'Days to keep pages in History' to 1. This will not only keep IE neat and tidy, but will also act as a cushion if you forget to clear.

If you don't want to clear your entire History folder, you can choose to remove single pages. To do this, click the History button on your IE toolbar to open the History window frame. Right-click on the file you want to dump and select Delete from the pop-up window.

Filtering content

Certain sites on the Internet are certainly not appropriate for children. You can use a separate software program for filtering content, but IE also has some built-in filtering tools. To configure these, click the Content tab from Internet Options. Next, click the Enable button under Content Advisor and adjust the slider in each of the four categories:

Ad will come

Language, Nudity, Sex, and Violence. The Description box at the bottom details what each level allows. Click OK to activate the Advisor.

Disabling Java

Java and JavaScript applets can take control of your browser and you should therefore exercise caution in surfing unknown and potentially questionable sights. Both Java and JavaScript can be disabled from within the browser, but you will miss out on a lot of serendipitous cyber experiences if you surf with JavaScript turned off. The best course, then, would be to toggle between these settings according to the perceived security threat.

Changing setting of restricted zone

The default settings of Internet Explorer for Restricted Sites has Active Scripts enabled, which sounds a bit of a contradiction. To modify this settings, in Internet Explorer, go to Tools > Options > Security and select Restricted Zones. Click on Custom Level and then go to the Active Scripting option and disable it.

Netscape 6

The latest release of Netscape might be quite sluggish and not that popular, but if you are a Netscape fan, certain safety measures are still in order

Changing your security level

Skittish about sending unencrypted information, such as your name, phone number, or address across the Web?

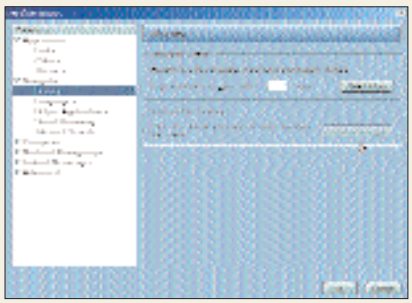
Thankfully, Netscape 6 warns you before it sends information through an unencrypted fill-in form. To enable this feature, select Tasks Privacy And Security in Security Manager, and click the Applications tab. Then check the 'Sending unencrypted information to a site' box. From this dialog box, you can also set Netscape 6 to raise a red flag before you enter or leave a site that does not support encryption.



Lock out hacker, cracker attacks

Clearing the Location Bar

Most of us mere mortals occasionally visit Web sites or perform searches that we don't want anyone else to know



Hide visited sites

about. But then anyone can see the last dozen URLs you entered into the Location bar by clicking the little down arrow on the right side of the window.

To clear the list, select Edit > Preferences > Navigator > History. Finally, in the History dialog box, click on Clear Location Bar.

Managing cookies

The History folder isn't the only place where Netscape records your surfing habits. Many Web sites drop cookies onto your system. To clear them, select Tasks > Personal Managers > Cookie Manager. A pop-up window will appear with a list of the cookies already on your PC.

Select a cookie to see its name, the domain name the cookie came from, its path, whether it's secure or not, its expiration date, and the data it is storing. Click Remove Cookie to zap the cookie from your PC.

Setting privacy options

It's advisable to be discreet when you're signed on to Netscape 6 Instant Messenger. To ensure privacy, click Tasks, Instant

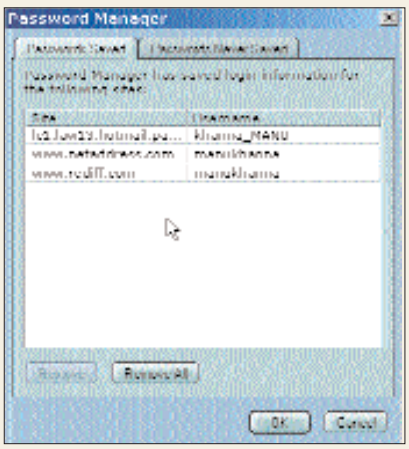


Chat with no one but your friends

Messenger, and then select the Preferences icon. Under Instant Messenger, select Privacy. Choose either the 'Block all users from connecting' button or the 'Block the users listed below' button, and type in the screen names of the people you want to avoid chatting with. Click OK.

Manage your Usernames and Passwords

Netscape's Password Manager stores and



Get warnings from Netscape

automatically enters your login information for password-protected Web sites. To start using the Password

Ad will come

Manager, click Edit, Preferences, and then choose Password Manager in the Advanced section. Next, click the Enable Password Manager check box in the pop-up dialog box.

The next time you visit a site that requires you to log in, you'll be prompted to create a master password. To see a list of all your stored passwords, select Tools > Personal Manager > Password Manager, and finally View Saved Passwords. From the same configuratio menu, you can also choose to encrypt the data that is stored on your hard disk, so that others don't have access to it.

Encrypt Passwords

The problem with saving your passwords in the above manner is that anyone who uses your computer will have access to your saved passwords, for instance your bank account. Netscape 6 allows you to store all your passwords behind a master password. To do this, select Tasks > Privacy and Security > Password Manager and finally the Change Personal Security Password option.

SAFETY IN E-MAIL AND CHAT

Your personal privacy is quite often at stake while chatting on the Net or posting at newsgroups. A little protection can safeguard your identity on the Net

Disabling archiving of postings

When you post to a newsgroup, your post is not only accessible to millions of users, it gets archived also with a site such as DejaNews. That means you can still be 'hunted' down after many years. If you don't want your messages to be archived, type the following text in your header, x-no-archive: yes. You can also remove messages that have already been archived by DejaNews. Information about archival and removal can be found on the site.

Avoiding newsgroup spams

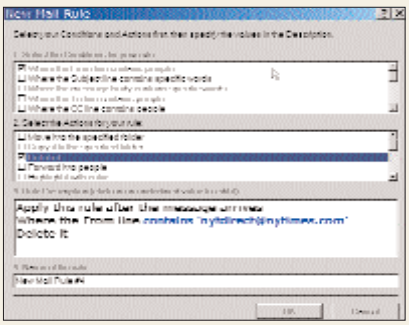
There are many bots which automatically retrieve e-mail addresses from newsgroup posting and then bombard you with spam. To prevent such spamming, while at the same time ensuring that you get a response to your posting, use an e-mail address which contains removal instructions for the correct e-mail address. You can for example use an e-mail address such as abc@removethishotmail.com.

Encrypting messages

If you regularly send confidential information, then it's a good idea to encrypt all your outgoing messages. You can use a freeware tool such as PGPfreeware for this. PGPfreeware encrypts your mail and enables you to send online decryption keys to the recipients, and integrates with Outlook Express and Eudora. In Outlook Express, go to Tools > Options, click on the Security tab and check the option for encrypting all outgoing messages.

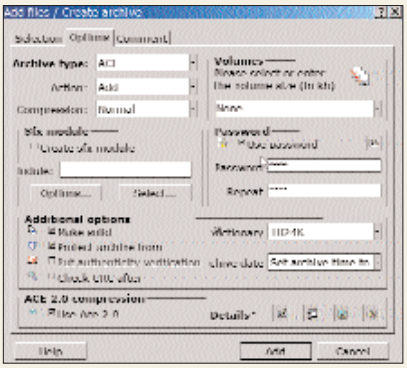
Blocking messages using filters

All e-mail clients allow you to define mailing rules for sorting mail. This feature can also be used to block spam mail, or mail from certain users. Start the filtering process, and select to delete messages which have some text string in the e-mail address or text like 'Iloveyou' in



Use Rules to control Outlook Express

the subject field. In Outlook Express, if you have received an unwanted message, you can just go to the Message menu and select Block Sender. The Block Sender option can be quite useful when you get junk e-mail from some list servers. Unsubscribing to these may often not work, and only serve to tell them that yours is a genuine e-mail address.



Make your zip files password protected

Password-protecting by using compression

If you must send e-mail attachments, make sure they arrive safely. You can add a level of security by compressing attachments with WinZip or a similar program, and by adding a password so that only the intended recipient can decompress the file. Click the Password button or use the Options menu in WinZip to assign a password.

Changing the Internet Zone

You can change the secure content zone in your e-mail client (Outlook or Outlook Express) to that of Restricted sites. This creates a more secure environment though it might be a little less functional. To change the zone, in Outlook, go to Tools > Options > Security. Select Zone from

Ad will come

the drop-down menu, and select Restricted Sites. For changing the Zone in Outlook Express, go to Tools > Options > Security, and select the Restricted Sites option.

Hiding IP address in ICQ

Since ICQ works by establishing a direct connection, you should ensure that your IP address is not visible to other users. Select the option to hide your IP address (though a determined user can easily bypass this security option), and ensure that other users need authorisation before they can connect to you. You can even select to remain invisible to most users and not publicise your details on the Web.

Spoofing IP in mIRC

When you are chatting in an IRC channel, anyone can just give the command /whois <yournickname> to get your IP address.

To spoof your IP address, you can use the command, /mode <yournick> +x (or +z) depending on the channel. Alternatively, you can work through a proxy server or an anonymiser.

Using a proxy server

The best possible solution for absolute privacy is to surf using a proxy server. You could, for instance, use Internet Junkbuster Proxy (www.junkbusters.com/ht/en/ijb.html), which can selectively block cookies. Another such tool is InterMute (www.intermute.com/), which blocks pop-ups as well.

Keeping a spam address

When filling up registration forms at sites or when you have to provide your e-mail address at public places, you should use an e-mail address that you have specially created for that purpose and don't give out your personal e-mail address.

Also, see to it that you reveal the bare minimum in the forms, and give false information as far as possible (unless you are in a shopping site, and require delivery of a product).

PC SECURITY

You can secure your PC by using firewalls and antivirus programs and configuring them correctly. A few tips towards this end

Locking Internet access in ZoneAlarm

If your office has an always-on Internet connection, use ZoneAlarm's Internet Lock feature to protect your machine in your absence. To enable this, right-click on the ZoneAlarm icon in the system tray and choose 'Restore ZoneAlarm Control Centre'. Then click on the Lock tab. The Internet Lock is disabled by default. Click on Enable. Now specify a delay time of 20 minutes.



Use the Lock icon to block Internet access

Next, check the High Security option. This will stop all Internet activity if the machine remains idle for more than 20 minutes.

E-mail protection with Norton Antivirus

If you are using an e-mail client to access your POP mail account(s), then you could set up Norton AntiVirus to scan all incoming mail. To do this, start Norton AntiVirus and open the Options window. In the left pane, browse down to the E-Mail Protection sub-menu under the Internet menu.

Next, select the e-mail accounts you want scanned before the mail is downloaded on to your hard disk. Finally, from the Action tab, specify the action to be taken in case a mail is infected by a virus and press OK to complete the configuration.

If you have Norton Personal Firewall, then you can also block ActiveX controls and other cookies. A unique feature of Norton is that it can also block advertisements and HTTP referrers (wherein a site comes to know where you are coming from).

Importance of LiveUpdates

By default, LiveUpdate is configured to look for updates every time you connect to the Internet irrespective of whether or not updates have been released. This can be very annoying. You can change the default setting to download updates only when a newer version is available. To do this, browse to the LiveUpdate menu under Internet in the Norton AntiVirus Options dialog box. By default, the 'Apply updates without interrupting me' option is checked. Change the default option by ticking the check box against 'Notify me when updates are available' and press OK.

Scanning all downloads in FlashGet

You can set up your download manager to scan files before they are downloaded. To configure FlashGet, start FlashGet and open the Options window from the Tools Menu. Once there, click on the File Manager tab and tick the check box against the 'Use virus scanner to scan the downloaded files' and browse to the folder where your antivirus program is stored.

Ad will come



Photograph: Rahul Sharma

IN TEST: 16 FLATBED SCANNERS

THROW A SCANNER IN YOUR WORKS

Choose one from among our recommendations and liven up your reports and presentations with distinctive images

Find it on digit interactive

More Info on the test process and the products tested, check out **Mindware**

ALIASGAR PARDAWALA

With innumerable free Web services and 'get-your-Web-site-up-in-five-minutes' software, the need for affordable imaging solutions is very apparent. The good news is that a plethora of such solutions are now available and you can choose from among them depending on your application.

With a scanner, you can port all those birthday and family photos over to your personal Web site. Apart from working with just images, if you buy a scanner with OCR capabilities, you can also scan documents and text from newspapers and magazines.

The latest scanners offer a host of features such as Scan-to-Web and Scan-to-e-mail. The Scan-to-Web function enables you to post images to your Web site at the touch of a button, while the Scan-to-e-mail feature allows you to e-mail an image directly—you don't have to separately import it into your e-mail client.

Apart from the enhanced functionality, today's scanners are sleeker and smaller than their predecessors, so you don't have to allot half of your desktop space to your new scanner.

Speed test

The speed of each scanner was first tested using a simple text document created in the lab, which contained both text and a company logo.

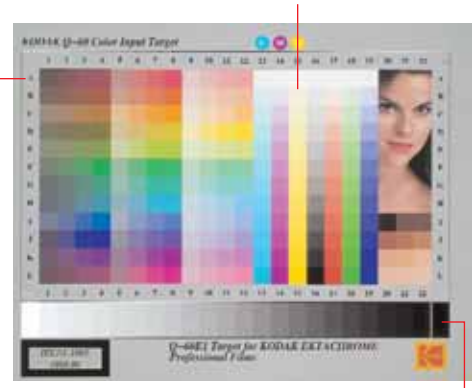
This document was previewed using the Twain drivers that came with each scanner, and the timing was logged using a stopwatch. Here, we logged the duration between the moment the Preview button was pressed and the moment the image appeared in Photoshop.

The fastest preview was generated by the Epson 1640 SU, which uses Twain 5 drivers developed by the same vendor. The scanner took only 5.58 seconds to preview the document at 300 dpi in true colour. The other impressive performers in the preview test were the Microtek ScanMaker 3600, which took 8.58 seconds, and the Epson 1240U Photo (9.31 seconds).

TEST PROCESS

We ran a battery of tests that evaluated a range of characteristics of the scanners besides just the image quality. We considered four factors in determining the performance of each scanner:





■ **Image Quality:** Since the prime function of a scanner is to pick up images and convert them into digital format, image quality is one of the most important parameters for evaluating flatbed scanners. Two reference images were used to test the image quality—the IT8.7 colour card, which is a standard image used worldwide for colour correction and calibration, and an A4-size photograph that helped determine the accuracy of the scanner in picking out details and subtle variations in colour, hue, brightness, and resolution.

■ **Resolution:** To determine the maximum resolution at which each scanner could pick out the finer details, we used a resolution target that consisted of five squares forming bar patterns, created at different dpi ratings.

■ **Speed:** We logged the time taken to scan a range of different images, and at different resolutions and colour depths. Additionally, the time taken to scan text documents and photographs in full colour and gray scale modes was also logged.

■ **Features:** We also considered build quality, ability to scan transparencies, documentation, buttons for one-touch scanning operations, and provision for upgrading to an Automatic Document Feeder.

The preview speed depends a lot on the technology used, the implementation of the optics used in the scanner, and the software that controls these scanning elements.

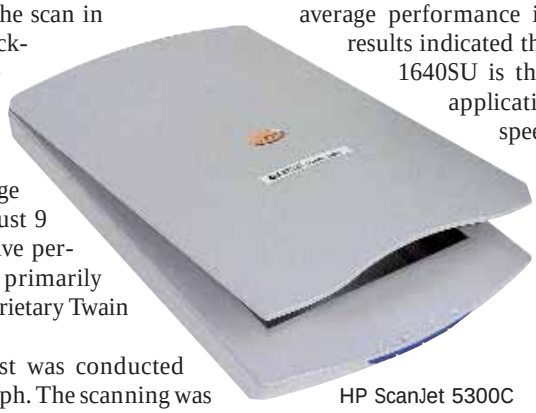
Next, we scanned the document in black-and-white (line-art) mode and then in gray scale mode at 200 dpi. The document was scanned directly to Photoshop from the Twain drivers of the respective scanners.

The HP ScanJet 5300C was the best among the pack in this test—it took just 8.31 seconds to scan the document in black-and-white mode, and 9.25 seconds for the scan in gray scale mode. In black-and-white mode, the HP ScanJet 5300C scanned the image, opened Photoshop and displayed the image in the application in just 9 seconds. This impressive performance could be primarily attributed to HP's proprietary Twain drivers.

The final speed test was conducted using the test photograph. The scanning was done at 300 dpi in full colour mode and subsequently in gray scale mode, using the maximum bit-depth offered by the scanner.

In gray scale mode, the HP ScanJet 5300C emerged the winner with a timing of 13.5 seconds. The Umax Astra 2400S, which is a SCSI scanner, came in second by clocking 15 seconds.

The fastest scanner in full colour mode was the Epson Perfection 1640SU. It scanned the test photograph in just 25.31 seconds. The first runner-up was the Umax Astra 3400 with a timing of 31 seconds. This scanner, however, gave an average performance in the other tests. The results indicated that the Epson Perfection 1640SU is the best suited for office applications because of its speed in scanning the photograph, although it was not quite as fast in scanning the text document.


HP ScanJet 5300C

The Umax Astra 3400 is the perfect buy if you are looking for an inexpensive scanner for home use.

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USB or SCSI?

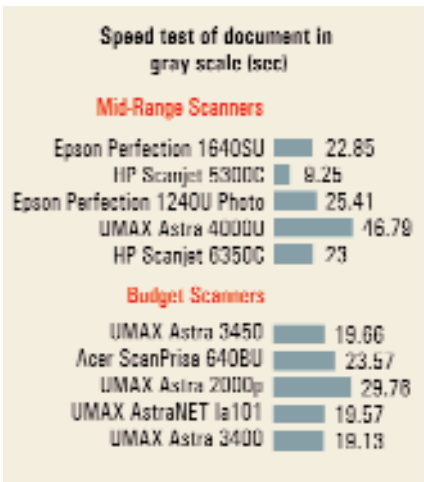
Almost all low-end scanners use a parallel port with a pass-through for a printer to also connect to the computer. This provides an inexpensive way to connect both the printer and the scanner to the computer. The downside to this is that speed is compromised and the other external Zip drives that need the parallel port cannot connect to the scanner. USB devices have been very successful in the market and you should opt for a USB connection over a parallel connection since it offers increased plug-n-play support, greater reliability and better flexibility.

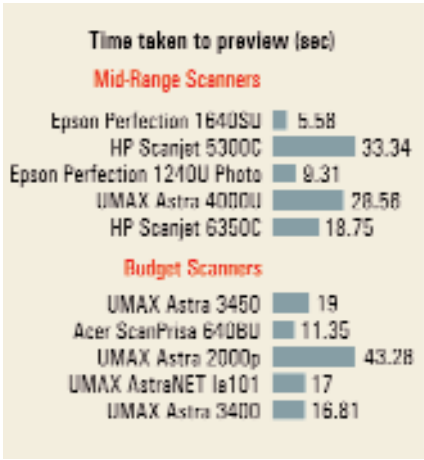
A high-end scanner usually comes with a SCSI connector. This is because SCSI connectors can handle a lot of data—a feature that is needed when dealing with large files. SCSI connectors usually ship with their own card and the SCSI connector of a scanner is likely to be incompatible with other SCSI cards.

If you are buying a low-end scanner with a resolution of less than 600 dpi, then opt for a USB device, while if you need a high-end scanner, a SCSI connector is a good choice.

It would be unfair to omit mentioning the Epson 1240U Photo, which wasn't far behind in any of the tests but couldn't make it to the ranks of the top three. Although it took more time than expected (84 seconds) for scanning the test photograph in full colour mode, it logged above-average results in all the other speed tests.

Overall, the HP ScanJet 5300C emerged as the fastest scanner in the speed test and the quality of the scans was also quite impressive. The Epson Perfection 1640SU came in a close second.





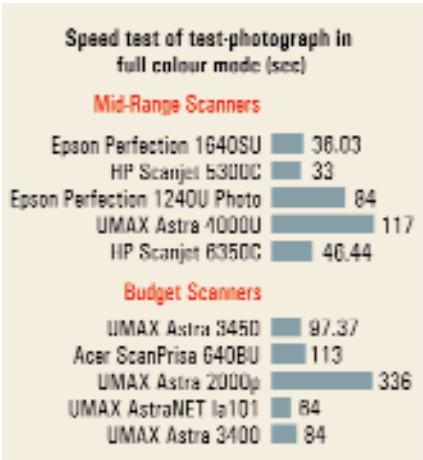


Image quality evaluation using IT8 card

This is one of the most comprehensive tests to evaluate the performance of imaging equipment. It was used to evaluate the ability of the scanners to differentiate between fine nuances in colour and luminosity.

To ascertain the scanner's ability to distinguish tonal resolution in gray scale areas, a set of 22 different blocks were observed to check for blending between adjacent blocks. This test determines the accuracy of the scanner in reproducing the various colour blocks in the IT8 card.

First, we checked if the scanner could accurately pick up the 22 different shades of colour. In order to log the most accurate values, we used the histogram function in Photoshop. We scanned the IT8 card onto Photoshop using the maximum optical resolution and bit-depth offered by the scanner in full colour mode. We selected an area that comprised 50 per cent each of two adjacent blocks and ascertained the standard deviation using Photoshop's histogram option. If the reading was greater than or equal to 2, then it implied that the scanner had differentiated between the two blocks. All the scanners but one passed this test by differentiating between adjacent blocks right up to block No 22. The exception was the Mustek 1200CUB, which could only detect differences among the first 21 blocks.

The next test performed using the IT8 card was the colour uniformity test. In this test, seven coloured blocks in the A row were selected in Photoshop. These were the lightest blocks in the row with very fine variations among them. Again the histogram function in Photoshop was used to determine the standard deviation of the red, green and blue colour values. The criterion was the same: a value of 2 or higher meant that the scanner had successfully detected the colour variations. Although none of the scanners scored below 2, many of them failed to pick up the green tones accurately.

The HP ScanJet 6350C recorded the

How Much Colour Depth?

Colour/bit depth is often wrongly associated with the number of colours a scanner can pick up. The bit depth is actually the number of levels of colour that a scanner can distinguish between. The extent of brightness values that a scanner captures (also called the dynamic range) depends upon two factors—the sensor and the analog-to-digital converter (ADC). For photos, the minimum depth needed is 24-bit, that is, 8-bits per colour or gray shade. However, even high-end 24-bit scanners often reduce the number of bits from 8 to 6. This means that the image does not have a 24-bit depth and so quality suffers. Also, the 6-bit colours tend to gather around the mid-tones, leading to deterioration in quality of the shadows and highlights. As the bit-depth increases, the output quality of the scanner should also increase. However, some manufacturers use a 24-bit scanner with a 10-bit ADC instead of an 8-bit ADC. This improves image quality to such an extent that it may even be better than a 30-bit scanner. However, you would need 30 bits or more for scanning slides or films.

lowest RGB tone readings (4.31, 3.11, and 4.35 respectively), while the Acer ScanPrisa 640U registered the best combined RGB value, with the individual readings being 11.65, 6.48 and 6.3, respectively. This implies that the ScanPrisa 640U's CCD (charged couple device) is of very high quality since it is wholly responsible for the detection of variations in colour tones.

In the last test in this series, we evaluated the tone detection in the shadow and bright areas of the IT8 card. We selected the area from block 1 to block 4 (F1-F4) for detecting variations in the shadows, and block 9 to block 12 (F9-F12) to test the detection of tones in the bright areas. Two blocks were selected, for instance, F1 and F2. The maximum area was selected and the standard deviation of the individual RGB values was noted down for both the shadow and bright regions of the IT8 card. Many of the scanners had problems in detecting the green tone and scored less than 2. The scanner that did well in this test was the HP ScanJet 6350C. It logged impressive results in the detection of red tones in the shadow region, but performed poorly in detecting the green tone, as did all the other scanners that we tested.

The scanners that gave consistent readings in all the three tests were the HP ScanJet 5300C and the Microtek ScanMaker 3600. The Umax AstraNET iA101 turned in the poorest performance—the standard deviation score for red was a dismal 0.47. The Acer ScanPrisa 640U also recorded poor readings in these tests.



Microtek ScanMaker 3600

Resolution test

This test evaluates the ability of the optics used in the scanner to detect the smallest possible details on the target document. We used a resolution card containing five blocks, each of which is made up of very fine lines that are created at a particular resolution. The first block was of 120 ppi (points per inch) while the fifth block was of 2400 ppi. The scan was done both in full colour and gray scale modes, and at the maximum optical resolution and bit-depth. It was then converted to 8-bit mode in order to use Magic Wand, which doesn't work on the directly scanned image. The tolerance was kept at 8 as opposed to the default value of 32. The individual scans were checked to ascertain the scanner's ability to pick up a particular resolution. All the scanners passed the third block effortlessly in gray scale mode, but many of them failed to detect even a single line in the fourth block (1200 ppi). The Microtek ScanMaker 3600 and the Umax Astra 3400 failed to detect even the second block in full colour mode.

The winner in this test was the Umax Astra 4000U, which detected all the individual lines in the fifth block. This scanner returned above-average results in the other tests but could not make it to the top three. The only other scanner that matched this performance was the Epson Perfection 1240U Photo. Although it could not detect the fifth block in full colour mode, it managed to do so in gray scale mode.

Scanning Transparencies

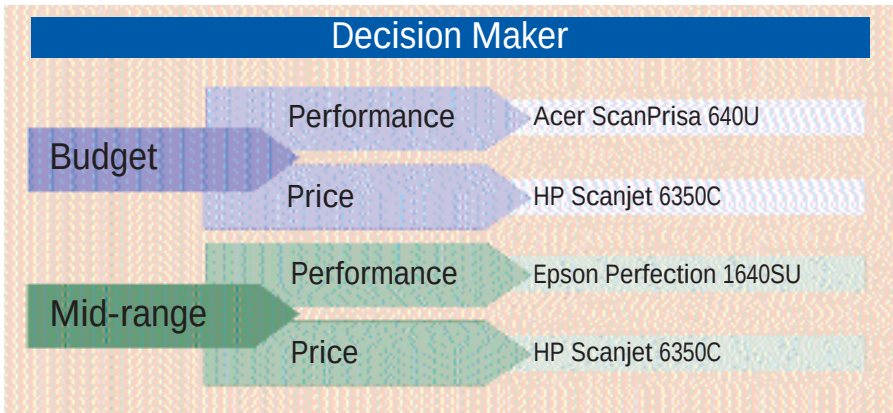
If you want to scan transparencies, slides or negatives, you have to place the original between the light source and the sensor so that light passes through it before it reaches the sensor. But most consumer-level transparency scanners place both the light source and the sensor on one side. Due to this, the sensor can actually pick up light as it reflects off the original. In such cases, you will need a transparency adapter (TPA), which is nothing but a backlight to replace the cover of the scanner. Not all scanners support TPAs, and the adapter costs between Rs 4,500 and Rs 13,500. Some high-end scanners come packed with the TPA.

An alternative method is to have a slide-out tray so that there is no glass surface between the original and the sensor. This reduces what are called Newton Rings. The downside is that these scanners cost around Rs 36,000.

Yet another option is to go in for a slide or transparency (4x5) scanner. These scanners focus on a small area and provide a high optical resolution for enlarging small negatives or slides. But good slide scanners are expensive, costing between Rs 40,000 and Rs 90,000.

The feature that you need to consider for scanning negatives or slides is optical density (OD). The higher the OD, the better the scanner. The OD is usually associated with the colour depth. For instance, the OD of a 24-bit scanner is generally less than that of a 36-bit scanner. But scanners with the same colour depth can have different optical densities.

Most scanners today have an OD of about 2.9, which is sufficient for scanning normal pictures. Slides and transparencies scan better with an OD of at least 3.2, and negatives need an OD of 3.4. An easy way of differentiating between a good scanner and a consumer-level device is to look at the packaging—a consumer-level scanner will never have the OD printed on its specs sheet.



SCORE BOARD Specifications

					SPECIFICATIONS			
Manufacturer	Dealer	Phone	E-mail	Price	Max. Resolution (Optical)	Max. Resolution (Interpolated)	Light source	Scanning element
AceR ScanPrisa 640BU	Acer Peripherals	022-5705230	pankajpamani@acercm.com.tw	Rs 6,700	600x1200	19200x19200	Cold cathode fluorescent	CCD
AceR ScanPrisa 640U	Acer Peripherals	022-5705230	pankajpamani@acercm.com.tw	Rs 5,500	600x1200	19200x19200	Cold cathode fluorescent	CCD
AceR ScanPrisa 1240UT	Acer Peripherals	022-5705230	pankajpamani@acercm.com.tw	Rs 16,000	600x1200	19200x19200	Cold cathode fluorescent	CCD
Epson 1240U Photo	Epson India ltd	080-5321266-70	sheetal@eid.epson.co.in	Rs 19,500	1200x2400	9600x9600	White cold cathode fluorescent lamp	ColorMatrixCCD line sensor
Epson 1640SU	Epson India ltd	080-5321266-70	sheetal@eid.epson.co.in	Rs 22,500	1600x3200	12800x12800	White cold cathode fluorescent lamp	Color MatrixCCD line sensor
HP Scanjet 5300C	Hewlett Packard (I) ltd	011-6826000	princy_bhatnagar@hp.com	Rs 12,499	1200x2400	9600x9600	Dual cold-cathode flourescent	CCD
HP Scanjet 6350C	Hewlett Packard India ltd	011-6826000	princy_bhatnagar@hp.com	Rs 26,499	1200x2400	999,999	Dual cold-cathode flourescent	CCD
MICROTEK Scanmaker 3600	Microtek International Ltd.	491 3986/87/ 88/89/90	info@compuageindia.com	Rs 4,550	600x1200	9600x9600	Cathode fluorescent lamp	CCD
MICROTEK Scanmaker X6	Microtek International Ltd.	491 3986/87 /88/89/90	info@compuageindia.com	Rs 7,250	600x1200	9600x9600	Cathode fluorescent lamp	CCD
Mustek 1200CUB	Integra Micro Systems Pvt. Ltd.	8207208/8215179	mumbai@integramicro.com	Rs 9,000	600x1200	19200x19200	Cathode fluorescent lamp	CCD
UMAX Astra 3400	Neoteric Infomatique	022-4172600	sales@neoteric-info.com	Rs 5,550	600x1200	9600x9600	Cold cathode lamp	CCD
UMAX Astra 3450	Neoteric Infomatique	022-4172600	sales@neoteric-info.com	Rs 9,950	600x1200	9600x9600	Cold cathode lamp	CCD
UMAX Astra 2000p	Neoteric Infomatique	022-4172600	sales@neoteric-info.com	Rs 3,900	600x1200	9600x9600	Cold cathode lamp Cold cathode lamp	CCD
UMAX Astra 2400S	Neoteric Infomatique	022-4172600	sales@neoteric-info.com	Rs 18,000	600x2400	9600x9600		CCD
UMAX Astra 4000U	Neoteric Infomatique	022-4172600	sales@neoteric-info.com	Rs 17,000	1200x2400	9600x9600	Cold cathode lamp	CCD
UMAX iA101	Neoteric Infomatique	022-4172600	sales@neoteric-info.com	Rs 6,500	600x1200	9600x9600	Cold cathode lamp	CCD

An Eye for Detail

The feature to look out for in scanners is resolution. Basically, this means the optical resolution, or the information the scanner has actually acquired, and the interpolated resolution, which is the resolution attained after applying several enhancements to the image. If you are looking for greater detail in the document/picture, then you should go in for a scanner with a higher optical resolution. However, if you just want to enlarge the photos, then a higher interpolated resolution is what you need.

For images with few details, an optical resolution of 300 dpi will be sufficient. But for scanning line art and detailed images, you will need a scanner with an optical resolution of 600 dpi. Some film and slide scanners offer a resolution of 1200 dpi.

However, it is advisable not to scan at the maximum resolution your scanner supports because the quality of the image suffers when it is passed through an image editing software. Also bear in mind that quality at a given resolution differs in the case of scanners offering different maximum resolutions. For example, an image scanned at 300 dpi would look clearer if scanned from a 1200 dpi scanner than if scanned from a 300 dpi scanner.

Test photograph evaluation

This was a real-world test wherein we printed a full A4-sized photo in the highest quality mode using photo paper. Here, we looked out for the overall reproduction of the image and compared it with the original one in terms of colour reproduction, tones of the image and the hues in specific portions. A total of 11 results were logged in this test.

One scanner that really stood out in each of these 11 tests was the Epson Perfection 1640S.

The Umax Astra 4000U also performed impressively, but lost out in its reproduction of the finer details. The Microtek ScanMaker 3600 turned in the poorest results, and the ScanMaker X6 was also disappointing.

								OTHERS		
Color Density	A/D Converter	Scan Area (in inches)	Scanning method	Scanning surface (LxB) cms	Physicial Dimensions (DxWxH) - cms	Weight	Interface	TP Adaptor	Bundled Software	Overall Grades
48-bit	Yes	8.5x11.7	F/B	8.5x11.7	19x12x3.5	8.8lb	USB	No	Ulead PhotoExpress,ABBYY FineReader OCR software,Presto! PageManager	B+
48-bit	Yes	8.5x11.7	F/B	8.5x11.7	19x12x3.5	8.8lb	USB	No	Ulead PhotoExpress,ABBYY FineReader OCR software,Presto! PageManager	B+
48-bit	Yes	8.5x11.7	F/B	8.5x11.7	18x12x3	8.8lb	USB	No	"ABBYY FineReader,Presto! PageManager,ScanButton software,Ulead PhotoExpress"	B
42-bit	Yes	8.5x11.7	F/B	8.5x11.7	269x435x93mm (W.D.H)	2.8kg	USB	Yes	PageManager,ScanButton software,Ulead PhotoExpress "	A-
42-bit	No	8.5x11.7	F/B	8.5x11.7	17.4x11.4x3.8	4.5 kg	USB	Yes	Adobe PhotoDeluxe, ScanSoft Textbridge Pro OCR; ArcSoft PhotoPrinter, ArcSoft Panorama Maker.	A-
36-bit	Yes	8.5x11.7	F/B	8.5x11.7	19.9x11.9x4.1	8.1 lb	USB	No	Adobe PhotoDeluxe, ScanSoft Textbridge Pro OCR; ArcSoft PhotoPrinter, ArcSoft Panorama Maker.	B+
36-bit	No	8.5x11.66	F/B	8.5x11.66	19.6x12.3x7.6	12.7 lb	USB/SCSI 2	No	HP PrecisionScan,PhotoDeluxe,Hemera PhotoObject gallery, Hemera NetGraphics, Internet DesignShop	A-
42-bit	Yes	8.5x11.7	F/B	8.5x11.7	290x100x440	-	USB	No	HP PrecisionScan, HP Scanjet Copy utility,Hemera PhotoObject Gallery, WebShop Designer 5.0.	B
36-bit	No	8.5x11.7	F/B	8.5x11.7	11.5x3.2x17.3	11 lb	SCSI	No	Adobe PhotoDelux,PhotoImpact, Caere OmniPage,Caere PageKeeper,Trellix Web.	B
48-bit	No	8.5x11.7	F/B	8.5x11.7	16.1x10.6x1.4	4.2 lb	USB	No	MICROTEK Scansuite, PhotoImpact,Kai's PhotoSoap,Caere PageKeeper,Caere OmniPage	B
42-bit	Yes	8.5x11.7	F/B	8.5x11.7	18.2x11.6x2.6	-	USB	No	Ulead Photo Express, Text Bridge OCR	B
42-bit	Yes	8.5x11.7	F/B	8.5x11.7	18.2x11.6x2.6	-	USB	TP cover	Adobe Photo Deluxe,Caere OmniPage, NewSoft Presto! PageManager, NewSoft Vistashuttle.	B+
36-bit	Yes	8.5x14	F/B	8.5x14	21.4x13x4.1	9.9 lb	Parallel	No	Adobe Photo Deluxe,Caere OmniPage, NewSoft Presto! PageManager, NewSoft Vistashuttle.	B+
42-bit	No	8.5x14	F/B	8.5x14	21.4x13x4.1	9.9 lb	SCSI	No		B+
42-bit	Yes	8.5x11.7	F/B	8.5x14	21.4x13x4.1	9.9 lb	USB	No	Adobe Photo Deluxe	A-
	Yes		F/B	8.5x11.7	18.2x11.6x2.6	-	USB	No	MGI Photo Suite III, OCR, Mailpack	B+

CONCLUSION

After putting all the scanners through our speed and image quality tests, we came up with a set of choices for virtually any application.

In terms of sheer speed as well as overall performance, the **Epson Perfection 1640SU** was the clear winner. Due to its high price tag, this scanner is not the best option for most home users, but it is definitely a very viable option for the demanding office user who is looking for the best scanning solution in the sub-Rs 30,000 price range.



Acer ScanPrisa 640U



Epson Perfection 1640SU

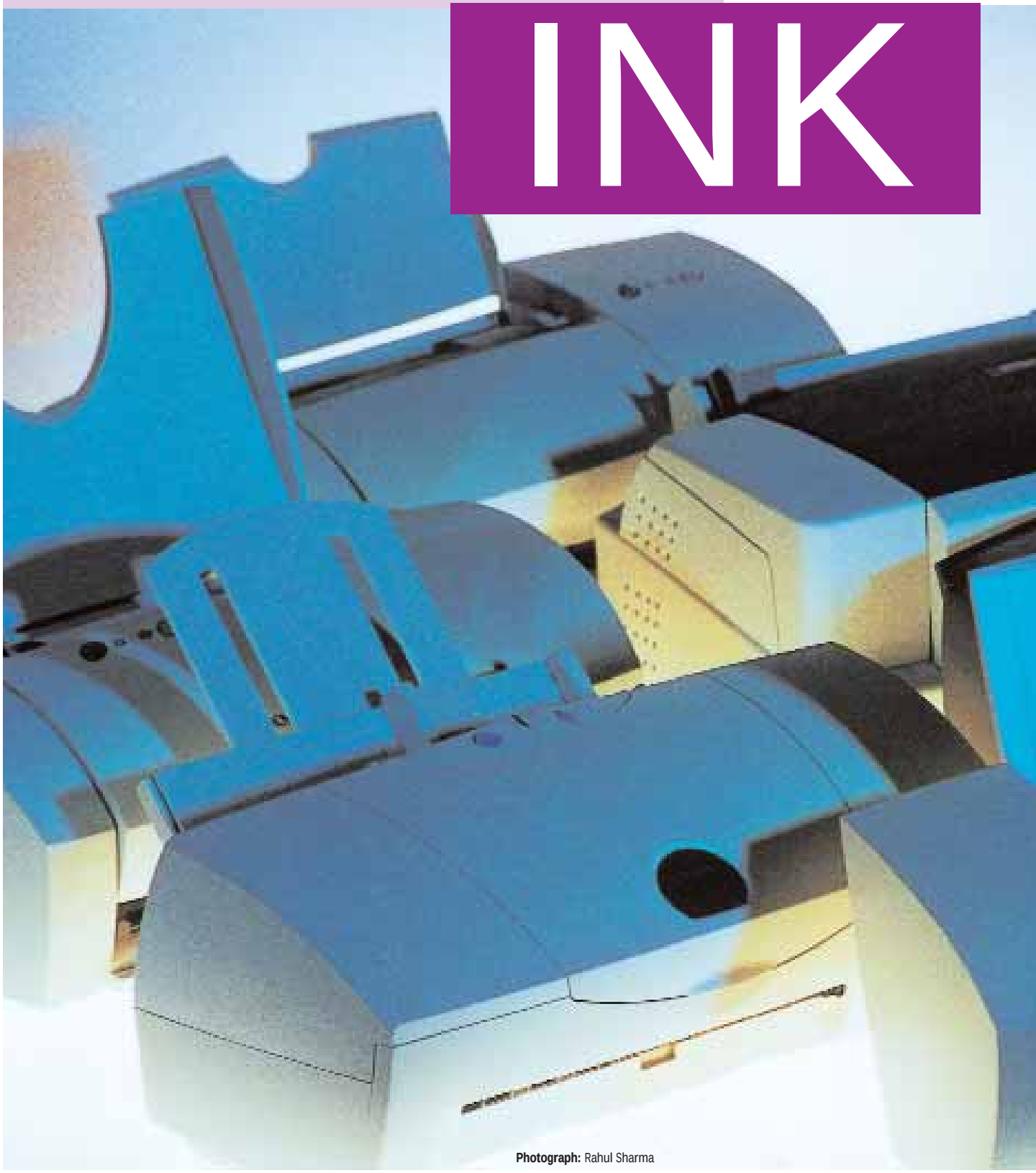
The HP ScanJet 6350C was also a noteworthy performer, delivering excellent quality both in the photo and the combi-document tests, and at very impressive speeds.

In the budget category, the **Acer ScanPrisa 640U** turned in an excellent performance and is an ideal buy for home users who are looking for both quality and speed at an affordable price.

The runner-up in this range was the Umax Astra 3450, with its high cost being the only drawback of this scanner.

With the steady advancement of optical technology coupled with declining prices, scanners are rapidly penetrating the home segment. For all you imaging buffs out there, the future of imaging looks really clear and sharp!

IMAGING WITH INK



Photograph: Rahul Sharma

IN TEST: 21 INKJET PRINTERS



For ardent fans of the world of ink and paper, vivid colours and breathtaking resolutions are now within reach, with a plethora of inkjet printers to choose from

MENLYN NORONHA

From stunning greeting cards to your housing society's newsletter, today's inkjet printers are capable of some of the most realistic images and sharp text printouts today.

Printer technology has not really witnessed as drastic a change as that seen in other realms of computing such as 3D graphics processing, but it has seen a very significant drop in terms of the technology available for a given price.

Until about six months ago, for instance, 1440 dpi printing was imaginable only in the professional printing segment, and home and SoHo users had to be content with a 600 dpi resolution. However, today's printing technology lets even home users enjoy full colour printing at high densities, and at prices that put inkjet-printing technology within the reach of most home users.

TEST PROCESS

The test system consisted of a Celeron 466-based computer with 128 MB SDRAM, a 440BX-based motherboard, and a 20 GB Seagate U8 IDE hard disk. Since the performance of the printers also depends on the interface, we configured the parallel port to operate using the ECP+EPP mode. The USB ports were also enabled on the system to support printers that featured this interface.

We loaded Windows 98 SE on a cleanly formatted system and mapped the image of the drive with the OS and all the drivers loaded. This image was restored after each printer was tested so as to eliminate any interference from previously loaded printer drivers.

Each of the printers was subjected to a range of tests that evaluated their performance on two basic parameters—printing speed and image quality. For ascertaining the print speed, we used a sample document file that consisted of five

Find it on digit interactive

More Info on the test process and the products tested, check out Mindware

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Printers, Then and Now

Inkjet printers penetrated the home segment only a few years back. Vendors such as HP and Canon developed inkjet-printing technology in the 1980s, but the prevailing prices were beyond the reach of most home users.

Working with these printers was also an expensive affair due to the cost of the ink used, the ink wasted during printing, and the overall expenditure involved in maintaining these printers. Dot matrix printers then were really slow and noisy and had many other disadvantages, but inkjet printers came into the scene and changed all that. With advancements in technology, these printers became increasingly efficient, and as sales volumes picked up, the prices too started steadily declining.

Today, most of these printers use either thermal or piezoelectric technology.

Thermal technology: This is the technology used in the Canon and Hewlett-Packard range of inkjet printers. Here, heat is used to fire ink onto the paper. The ink is actually squirted onto the paper, and this process is initiated by heating the ink to create a bubble until the pressure forces it to burst and hit the paper. The bubble then collapses as the ink cools, and the resulting vacuum draws ink from the reservoir to replace the ink that was ejected. Tiny heating elements are used to eject ink droplets from the print head's nozzles.

Piezoelectric technology: This is a proprietary Epson technology wherein a piezo crystal is placed at the back of the ink reservoir. The piezo element oscillates when subjected to electrical voltage. To generate an ink drop, a current is applied to the piezo element. The element flexes and in doing so, it shoots a drop of ink out of the nozzle. The process helps to maintain control over the shape and size of the ink droplet. The tiny fluctuations in the crystal allow for smaller droplet sizes and hence higher nozzle density.

The speeds of printers using either of these two technologies have increased tremendously over the years. You can now choose from among various types of printers, and can also print in multiple modes (such as economical mode and best quality mode). So the next time you take an inkjet printout, think of the amazing technology that makes it possible.

sample letters, each having text combined with a graphic logo. The time taken to print out this sample file in black-and-white and gray scale modes was logged.

The image quality test consisted of two tests that were run using two separate sample prints. The first document was a combination of text, vector graphics and photos. The output of this document was evaluated to determine the printer's performance in terms of its ability to reproduce converging lines, concentric circles, high contrast text on a dark background, and the finer details in the original document.

To evaluate the performance of the printer in handling photographic prints, we used an actual A4-sized photograph that featured many variations in hue and brightness, and also had many details and fine nuances.

We also considered features such as build quality, thoroughness of the documentation, bundled software, etc, with points being awarded for each feature.

Based on the price, two categories emerged: budget printers priced below Rs 15,000, intended for home use, and mid-range printers costing more than Rs 15,000, used more in offices.



Lexmark Z52: Sturdy and fast

Speed

For comparing the speed of the printers, the text document was printed in normal draft mode (or black-and-white mode) on plain paper, and then again using gray scale mode. We then printed the image document in both gray scale and normal colour modes on plain paper. We logged the time taken for each of these printouts to determine the printer's performance in each of the two modes.

The **Lexmark Z52** clocked the fastest time of 36 seconds for printing the five-page text document in normal mode, followed by Hewlett-Packard's DJ 990Cxi (42 seconds) and the Epson Stylus Color 880 (60 seconds). So if the bulk of your printing applications at home or office involves text documents, the Lexmark Z52, with its combination of speed and excellent print quality, is the best choice.

It printed the text document in gray scale mode in 55 seconds, which was the fastest time logged in this mode. The runners-up (in gray scale mode) were the Lexmark Z42 (61 seconds) and the Canon BJC 2100SP (88 seconds).

You may well wonder why you would ever need to print a document in gray scale mode. Well, if you have used colours in a document and just need a printout to proof it, you could take the printout in gray scale mode and save your expensive colour cartridge for the final printouts.

In the image document test in normal mode, the winner was the **Epson Stylus Color 880** with a print speed of 31 seconds, followed by the Canon BJC 5100 (43 seconds) and the Epson Stylus Color 680 (62 seconds). If you need a printer to execute volume-printing tasks in colour, go for the Epson Stylus Color 880.

In the final speed test, wherein the image document was printed in gray scale mode, the **Epson Stylus Color 680** emerged as the winner with a timing of 44 seconds. Three printers came in a close second—the Lexmark Z52, the Epson Stylus Color 880, and the Epson Stylus Photo 870, with all three clocking 63 seconds. So if you regularly proof images and want to conserve your colour cartridge, you have a choice of four printers.

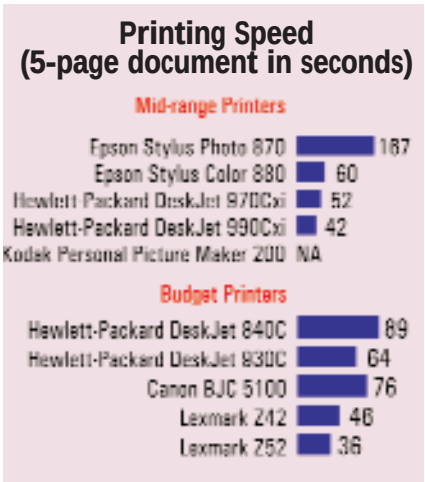


Image quality

When you consider buying a printer, the image quality it offers is sure to be uppermost on your mind. If the test of a printer is in its ability to print image documents that are faithful to the original, then its ability to print documents with text and images combined may be considered the acid test. We divided the image quality test into two parts:

The combi-document: This document, as mentioned earlier, contained both high-resolution images as well as text, which were combined in a manner that would comprehensively test the printer's image reproduction capabilities, including its ability to replicate the finer details of the original.

The Flower-Woman photo: This was the second part of the test procedure wherein the image (*see image in the Scanner comparison test*) contained several minute details, such as the wrinkles on the woman's forehead, details in the clothing, contrast and sharpness in the flowers, etc that would put the printer to the test.



HP DeskJet 990Cxi: High in quality but also in price

Image quality (combi-document)

We used photo quality inkjet paper, and the document was printed in photo or high-resolution mode as opposed to the normal or draft mode that was used in the speed test. We observed the four-colour checkered box in the output to evaluate the colour depth and the sharpness of the checks. Only five printers passed this test without any errors—the Epson Stylus Color 870, the Epson Stylus Color 880, the Canon BJC 5100, the Canon BJC 7100, and the Wipro Emerge e7460. Seven of the printers displayed an almost flawless performance—for instance, the HP DJ 930C lost a point for pixelation in the black checks, while the Epson Stylus Color 680 lost a point for uneven checks.

The concentric circles image, which had lines drawn from the centre to the circumference of the outermost circle, was checked for accuracy of reproduction. The Epson Stylus Photo 870 secured the highest score allocated for reproducing this feature, while the others lost out because of jagged lines or non-uniform colouring.

Next, we observed the seven coloured bars with 10 levels of colour saturation to determine each printer's ability to capture the colour variations. The winner in this department was the **Hewlett-Packard DJ 990Cxi**—it was able to accurately reproduce 59 of the 70 coloured boxes. The same vendor's DJ 930C came a close second by flawlessly picking up 56 of the 70 boxes, while the Epson Stylus Photo 870 took third place by picking up 55 boxes.

The next section we observed was the black box with the yellow text. Here again, the Hewlett-Packard printers took the top positions and were followed closely by the Epson Stylus Color 880 and the Kodak Personal Picture Maker 200. The Lexmark range fared the poorest, with all the outputs displaying a splurge of black without even a tint of the yellow colour of the text in the original.

We also considered a passport-sized photograph of the flower-woman to determine the printer's ability to pick out minute details even from such a small image. The joint winners here were the **Hewlett-Packard DJ 990Cxi** and the **Kodak PPM 200**, with the Epson Stylus Color 880 and three other HP printers losing out narrowly.

Finally, we determined the printer's ability to pick up small font sizes by observing the reproduction of the text printed in four different font sizes. This is a relevant feature if you want to print multiple pages in a single sheet: You would then have to depreciate the font size and would want your printouts to still be readable.

All the Lexmark printers barring the Z12, as well as HP's 990Cxi, 970Cxi, 930C, and 950C, were able to print three of the font sizes. Others that matched this performance were the Kodak PPM 200, the Epson Stylus Photo 870, and the Canon BJC 7100.

We then aggregated the scores achieved by each printer. The overall winners were the Canon BJC 7100, and Hewlett-Packard's DeskJet 950C, 840C and 930C. The other impressive performers were the Lexmark Z52, the Hewlett-Packard DJ 990Cxi, and the Kodak PPM 200.

Image quality (Flower- woman)

We concluded the image quality test by observing the printouts of the Flower Woman photo, and this was the most crucial part of the test as the image contained numerous minute details.

We checked for faithful reproduction

Inkjet Maintenance

Here are a few tips on maintaining your inkjet printer:

Aligning/calibrating the print head: This is one of the most important tasks to be performed after installing a new printer or a new cartridge. If the print head is not calibrated properly, it may result in abnormal or bad print quality. The newest range of printers from Hewlett-Packard have an automatic calibration process wherein the print head is calibrated automatically after the printer is installed or when the printer detects a cartridge change.

Cleaning the print head: If you encounter problems while printing, such as abnormal linings, bandings, uneven ink flow, or missing colours, the printer nozzles are probably clogged with excess dried ink that needs to be cleaned. This can be done from the toolbox or the monitoring software that gets installed along with the printer drivers. Generally, a test pattern is printed while the cleaning process is on, and this can help you determine whether a particular cartridge is out of ink.

Checking for paper jams: This is a frequent problem with inkjet printers, and could happen because of dust collecting in the paper path. You have to clean the printer regularly, especially the area near the paper output tray. Check for bits of paper and even stapler or paper pins that could cause paper jams and eventually damage the printer's assembly. It is a good practice to use a blower or vacuum cleaner once in a while to remove dust from the parts that are not accessible with your bare hands.

SCORE BOARD Specifications

Manufacturer	Model	Dealer	Phone	E-mail	Price	Resolution	Interface	Input buffer
BUDGET RANGE								
Canon	BJC 1000SP	CRR Centre*	011- 6806572	brijesh@canon.co.in	Rs 3700	720 X 360	Parallel	10 KB
Canon	BJC 2100SP	CRR Centre	011- 6806572	brijesh@canon.co.in	Rs 4000	720 X 360	Parallel/USB	54 KB
Canon	BJC 3000	CRR Centre	011- 6806572	brijesh@canon.co.in	Rs 6500	1440 X 720	Parallel/USB	128 KB
Canon	BJC 5100	CRR Centre	011- 6806572	brijesh@canon.co.in	Rs 9500	1440 X 720	Parallel	4 MB
Canon	BJC7100	CRR Centre	011- 6806572	brijesh@canon.co.in	Rs 13000	1200 X 600	Parallel	256 KB
Canon	BJC 50G	CRR Centre	011- 6806572	brijesh@canon.co.in	Rs 15000	720 X 360	Parallel/ IRDA	32 KB
EPSON	Stylus Colour 680	Epson Singapore P.Ltd	080-5321266	sheetal@eid.epson.co.in	Rs 8000	2880 x 720	Parallel / USB	32 kb
Hewlett-Packard	DeskJet 840C	HP India	011-6826000	princy_batnagar@hp.com	Rs 8499	600 X 1200	Parallel / USB	2 Mb
Hewlett-Packard	DeskJet 930C	HP India	011-6826000	princy_batnagar@hp.com	Rs 10990	2400 x 1200	Parallel / USB	4 MB
Hewlett-Packard	DeskJet 950C	HP India	011-6826000	princy_batnagar@hp.com	Rs 11499	2400 x 1200	Parallel / USB	4 MB
LEXMARK	Z12	T.V.S Electronics	044-2325506	ap.aditya@tbg.tvse.co.in	Rs 4295	1200 x1200	Parallel / USB	NA
LEXMARK	Z22	T.V.S Electronics	044-2325506	ap.aditya@tbg.tvse.co.in	Rs 4495	1200 x1200	Parallel / USB	NA
LEXMARK	Z32	T.V.S Electronics	044-2325506	ap.aditya@tbg.tvse.co.in	Rs 5495	1200 x1200	Parallel / USB	NA
LEXMARK	Z42	T.V.S Electronics	044-2325506	ap.aditya@tbg.tvse.co.in	Rs 8695	2400 x1200	Parallel / USB	NA
LEXMARK	Z52	T.V.S Electronics	044-2325506	ap.aditya@tbg.tvse.co.in	Rs 10995	2400 x 1200	Parallel / USB	NA
Wipro	eMerge e7460	Wipro Pheripherals Ltd	080-6397418	helpdesk.mumbai@wepindia.com	Rs 4500 (Only colour cartridge)	600 x 600	USB	512 KB
MID-RANGE								
EPSON	Stylus Colour 880	Epson Singapore . Ltd	080-5321266	sheetal@eid.epson.co.in	Rs 19000	2880 x 720	Parallel/USB	256 kb
EPSON	Stylus Photo 870	Epson Singapore P. Ltd	080-5321266	sheetal@eid.epson.co.in	Rs 19500	1440 x 720	Parallel/USB	256 kb
Hewlett-Packard	DeskJet 970Cxi	HP India	011-6826000	princy_batnagar@hp.com	Rs 19990	2400 x 1200	Parallel/USB	4 MB
Hewlett-Packard	DeskJet 990Cxi	HP India	011-6826000	princy_batnagar@hp.com	Rs 24499	2400 x 1200	Parallel/USB	8 MB
Kodak	PPM 200	Summit Infotech	011-6517995	vkalyan@summitindia.com	Rs 18000	1200 x 1200	USB	NA

*CRR Centre —Cannon Reseller Response Centre

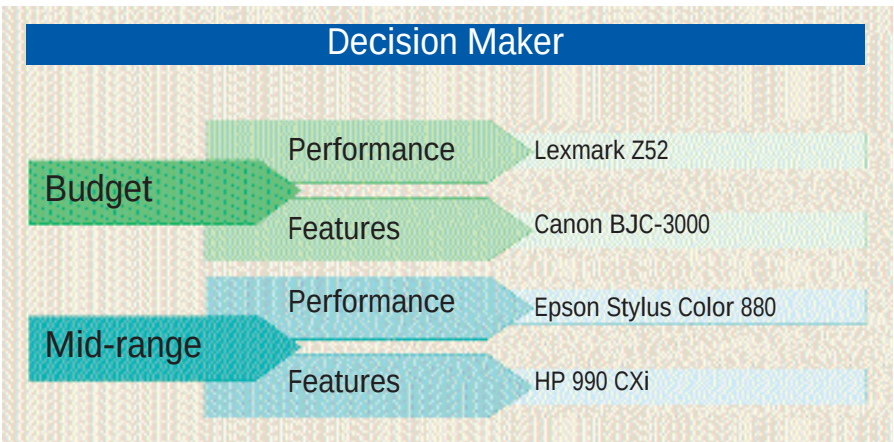
of details such as the colour of the woman's teeth and the wrinkles on her forehead, and looked out for signs of dithering or graininess in the print. Three printers performed exceptionally well here—the Epson Stylus Color 880, the Epson Stylus Photo 870, and the Kodak Personal Picture Maker 200. Those that narrowly lost out, primarily due to dithering and poor contrast quality, were the Lexmark Z52 and the Hewlett-Packard DJ 990Cxi.

Features

We considered features such as build quality, documentation, bundled software, accessories offered with the standard package, the type of power connector provided, etc., with points being allocated for each feature. Printers that printed even when the lid was open incurred penalty points, since it is not safe to print with the lid open, especially if there are children around. Most of the Lexmark models printed even when the lid was kept open. Dual-side printing facility was offered only by the HP printers, with some models offering it as an optional feature. But although the Canon BJC 2100SP and the Lexmark Z52 don't posses this mechanism, the software manipulates the entire process by first printing alternate pages and then flashing an online message that prompts you to reverse the sides and place the pages in the input tray in the correct sequence.

The printers from Lexmark, Epson and Canon display an online print status window that helps you keep track of the print jobs that have been fired.

The **Lexmark Z52** emerged as the most feature-rich printer, followed by the Canon BJC-3000, the Hewlett-Packard 970Cxi and the Lexmark Z42.



TECHNICAL DETAILS

Rated print speed	Paper capacity	Cartridges included	Rated black cartridge life	Rated color cartridge life	Printing technology	Weight (Kg)	Physicial Dimensions (DxWxH) - cms	Users Manual	Power Cord	Overall Grades
4 PPM	50 Pages	Black & Colour	600 Pages	100 Pages	Bubblejet Ink On Demand	2.2 Kg	360mm x 174mm x 160mm	Yes	Yes	B
5 PPM	50 Pages	Black & Colour	1800 Pages	130 Pages	Bubblejet Ink On Demand	2.4 Kg	370mm x 191mm x 164mm	Yes	Yes	B+
9 PPM	50 Pages	Black & Colour	500 Pages	280 Pages	Bubblejet Ink On Demand	3.7 Kg	418mm x 3.6mm x 169mm	Yes	Yes	A-
10 PPM	130 Pages	Black & Colour	NA	NA	Bubblejet Ink On Demand	5.3 Kg	498mm x 279mm x 222mm	Yes	Yes	B+
8 PPM	130 Pages	Black & Colour	900 Pages	320 Pages	Bubblejet Ink On Demand	6.4 Kg	467mm x 313mm x 218mm	Yes	Yes	A-
5.5 PPM	30 Pages	Black & Colour	170 Pages	40 Pages	Bubblejet Ink On Demand	900 Grams	302mm x 112.5mm x 49mm	Yes	Yes	B
3.8 PPM	100 Pages	Black & Colour	600 PAGES	300 PAGES	Epson Micro piezo	4.1 Kg	450mm x 547mm x 259mm	Yes	Yes	A-
5 PPM	100 Pages	Black & Colour	NA	NA	HP Thermal Inkjet	5.66 Kg	18" x 7" x 14"	Yes	Yes	B
7.5 PPM	100 Pages	Black & Colour	NA	NA	HP Thermal Inkjet	5.7 Kg	440mm x 196mm x 400mm	Yes	Yes	B+
8.5 PPM	100 Pages	Black & Colour	NA	NA	HP PhotoRet III Clr Layering	5.94 Kg	440mm x 196mm x 370mm	Yes	Yes	B+
3 PPM	100 Pages	Colour Cartridge Only	NA	NA	Thermal Inkjet	1.8 kg	296mm x 373mm x 678 mm	Yes	Yes	B
3.5 PPM	100 Pages	Colour Cartridge Only	NA	NA	Thermal Inkjet	2.4 kg	319.8mm x 447mm x 495.6mm	Yes	Yes	B
3.5 PPM	100 Pages	Black & Colour	NA	NA	Thermal Inkjet	2.4 kg	319.8mm x 447mm x 495.6mm	Yes	Yes	B+
5 PPM	100 Pages	Black & Colour	NA	NA	Thermal Inkjet	4 kg	287mm x 444mm x 521mm	Yes	Yes	B+
7 PPM	100 Pages	Black & Colour	NA	NA	Thermal Inkjet	4 kg	287mm x 444mm x 521mm	Yes	Yes	A-
2 Pages	100 Pages	Black only (Printer avaliable with Colour and Black Cartridge)	NA	NA	Thermal Inkjet	5.4 Kg	404mm x 476mm x 211mm	Yes	Yes	B
4.6 PPM	100 Pages	Black & Colour	900 Pages	300 Pages	Epson Micro piezo	5.6 Kg	450mm x 546mm x 269mm	Yes	Yes	A
8.8 PPM	100 Pages	Black & Colour	540 Pages	220 Pages	Epson Micro piezo	5.6 Kg	470mm , 613mm x 302mm	Yes	Yes	A-
10 PPM	150 Pages	Black & Colour	NA	NA	HP Thermal Inkjet	5.9 Kg	431.8" x 196.8" x 431.8"	Yes	Yes	A-
13 PPM	150 Pages	Black & Colour	NA	NA	HP Thermal Inkjet	NA	431.8" x 431.8" x196.8"	Yes	Yes	A-
NA	NA	Color & Black	NA	NA	Thermal Inkjet	2.6 Kg	463mm x 234mm x 195mm	Yes	Yes	A-

CONCLUSION

It's clear that there can be no outright winner for all uses—your application and your budget will determine the best printer for you. If you are what we could term as the 'average home user', you would want to strike a balance between performance (both in terms of speed and image quality) and price. If you are a graphics professional, you can't possibly compromise on quality and so you wouldn't let pricing constrain your choice.

In the performance category, the **Epson Stylus Color 880** with its faithful reproduction of fine details and colour gradations emerged the clear winner. While the printer performed well in the speed tests, it really shone in image quality prints, where the level of details and the ability to faithfully reproduce col ors was breathtaking. This was especially apparent in the photograph printout, where the details in the various sections of the photo came through brilliantly. Also, with very robust build quaity and righ features, this printer is a very good choice for the demanding office user who needs the best in printing technology.

The **Canon BJC 3000**, with its commendable print quality, bagged our Best Value award as it offered good performance at a very good price point, making it an ideal choice for the home user who's interested in printing stationary, cards etc without spending too much.

With the price for a given technology, speed, and resolution declining rapidly over the recent past, inkjet printers are now well within the reach of the home user. If you are still deliberating on the pros and cons of buying your first printer or upgrading to a new one, an evening of window shopping will help you make the decision, for you are sure to find a product that fits your requirements and your budget.



Epson Stylus Color 880: Good performance



Canon BJC 3000: Value for money

IN TEST: 10 PERSONAL FIREWALLS



In the Line of FIRE

Protect your PC from security breaches with a personal firewall. A look at the best of these

MOHAN KRISHNAN

Plain paranoid or simply stupid? Either way, you are capable of wreaking havoc on your system. A little bit of sanity and patience, on the other hand, can get you a perfect system working to its optimum. The same logic can be applied to personal firewalls. Today, you have a number of options to choose from in this category—some paid, some free. And depending on your outlook and skill, you can configure your firewall such that you are totally cut off from the rest of the world, or the entire world has access to your hard disk contents.

What exactly does a personal firewall do? A firewall, to put it very simply, acts as a filter between you and your network connections (including Internet connectivity). It wards off intrusion attempts, Trojans and other malicious attacks. Personal firewalls are meant for the home user or for the desktop user in a networked corporate environment. They aim to block simple attacks, unlike the enterprise-level firewalls that the corporate world uses at the server or router end. These are more complex and are geared towards keeping the server up all the time and protecting the entire network.

But do you really need a personal firewall? Broadband, increase in security attacks, bugs in everyday software, etc, would seem to suggest so but then again, you might think that behind the

Imaging: Neeta Wadiker

anonymity of a dynamic link of a dial-up connection or the firewall of a network, you are pretty safe.

This may be true to some extent for intruders aren't exactly searching for your particular machine. But when the reviewers at *Network Computing* (India) conducted a surprise scan through some VSNL dial-up IP pools in Mumbai, they found that 89 out of around 2,000 IP addresses were ailing from Back Orifice infection. In addition, around 24 NetBus infections were identified. Another test they conducted involved nuking and pinging (*see Glossary*) the very same pool of IP addresses using two different DoS (Denial of Service) tools. They succeeded in around 50 per cent of the cases.

Now if your's was one of the machines under attack, you must have wondered what you did wrong to suddenly find your machine crashing. So you see, it is not necessary for a person to actually know you, or your IP address, to gain access to your machine. If your machine is infected or prone to exploits, then even beyond the anonymity of a dynamic IP address, your PC can be hacked. A personal firewall, therefore, is one of the methods you can use to deny access to such intrusions. So, let's get personal with the firewalls.

TEST PROCESS

The Test Bench in which the firewalls were installed consisted of a Pentium 266 MHz processor with 64 MB RAM. The operating system in test was Windows 98SE. TCP/IP and NetBEUI protocols were installed on the Test Bench and File and Print Sharing was also enabled before installation of the firewalls. The security level in IE 5.5 was medium with prompt before using any Java applets or ActiveX controls.

To gauge the application-level filtering features of the firewalls, we installed certain standard software that try to access the Net. Using these software, we tried to send files as well as download files from a testing machine. Apart from these software, a popular Trojan, SubSeven 2.2 server, was also installed on the Test Bench.

Testing tools: Using a test machine, we ran certain port scanners on the Test Bench. The *nix-based port scanner, Nmap (version 2.53), and Windows NT/2000 based Retina Scanner (version 3.02 beta) were used to scan the Test Bench. With both the scanners, the machine was first scanned before installing any firewall and then scanned after the firewall was installed.



Know who is intruding into your computer with BlackICE Defender

Apart from these port scanners, we tried accessing SubSeven Server on the Test Machine using the SubSeven client. At the same time, we also used certain application exploits such as those for ICQ. To test the ability of the firewall to detect ActiveX exploits, we went to certain sites that, using ActiveX controls or Java applets, uploaded certain files or read certain files from the local machine.

We also created a test HTML page with an ActiveX control embedded that installed the Thing Trojan on to the machine. We then tried opening the HTML page using IE and noted the behaviour of the firewall. Apart from these specific tools, we also tried nuking the Test Machine (sending continuous packets of data). The ability of the firewall to detect and ward off such intrusion attempts was noted.

In all, we tested 10 personal firewalls for their features and performance. And since getting the best out of your personal firewall requires patience and learning, ease of use or configuration settings were accorded the same importance as the actual features and performance. The features and performance as measured against the price gives the value for money for the firewall. The best firewall is therefore the one that has the maximum features and gives the best performance at a price that is easily affordable.

Star performers

What makes for a good performing firewall? The answers are simple—the ability to ward off all intrusion attempts, control applications that can

Porting Problems: How Firewalls Work

Firewalls basically work by acting as a filter between your Internet connection and your application. At a very basic level, you can grant or block rights for different applications to gain access to the Internet. But this is just one part of the working and is related to your access to the Net. Firewalls also work in a reverse manner by blocking access to outside traffic, thus managing to ward off attacks. This is done by monitoring the ports and the protocols that the outside application is trying to use. The main protocols used for Internet access, TCP and UDP, use port numbers to distinguish between different logical channels on the same network interface card. There are 65,536 logical ports possible and these port numbers can be seen as a door to the outside world. Some doors are closed, some are open, so access to certain services or protocols (HTTP, FTP) depends on the open/closed nature of ports. Firewalls again act as gatekeepers and, as per your rule-set, show a port as open or closed for communication. Hence, you can block ports that you don't use or even block common ports used by Trojans.

Using firewalls, you can also block protocols, so restricting access to NetBIOS will prevent computers on your network from accessing your shared folders. Firewalls often use a combination of ports, protocols, and application-level security to give the best results.

Find it on digit interactive

More Info on the test process and the products tested

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Glossary

TCP: Transmission Control Protocol is the method used to transfer information between two connected computers over a network or the Internet. In a TCP implementation, the protocol divides the information into smaller packets, and also at the same time ensures that the packets reach the other side safely.

UDP: User Datagram Protocol is a connectionless transport protocol, which means that you do not need to have a connection established between the host and the remote machine before starting transfer of data.

ICQ, for instance, is an application that uses the UDP protocol. UDP, however, doesn't ensure that the packets reach easily, though it is faster.

ICMP: Internet Control Message Protocol carries control messages that are used to acknowledge and respond to connections. For example, the ping command uses this protocol.

IGMP: The Internet Group Management Protocol is an extension of the IP protocol and a standard for IP multicasting. It is used to inform local routers about the presence of a member of a multicast group. If a host is part of a multicast group, then it is also more prone to IGMP flooding.

Packet sniffer: Packet sniffing refers to monitoring data that is passed over a network. You have specific software that allow you to sniff the packets that travel and retrieve information from it.

RATs/Backdoors: Remote Administration Tools are a method of controlling remote machines using the IP address. Trojans such as SubSeven and BackOrifice are RATs in that sense as you can control a remote machine if the Trojan is installed in it.

Normally, these Trojans have a server part and a client part. The server is installed in the remote machine and listens on a particular port. Using the client, you can connect to the server on that port, and then control the machine in any way you want. You can even enable packet sniffing using some RATs.

DoS/Nukes/Flooding: Denial of Service attacks prevent a target machine from accessing a network resource. A simple form of a DoS attack is by sending large packets of data to a single machine, thereby making it unstable or even crashing it.

access the Internet, prevent malicious scripts or controls from stealing information or uploading files and prevent Trojans and other backdoors from running as servers.

Port scans: The good thing with most of the firewalls we tested was that they didn't show up any ports as open in the Nmap and Retina scans. If at all there was an open port, it was port 139, which is related to sharing files over networks. The one software that showed up more open ports was eSafe desktop. It showed port 139, port 6699 (the port used by the Napster application), and other such ports as open. BlackICE Defender was the most informative in terms of identifying the port scan attempts, and even recognised the Nmap scans and the actual commands that were being sent.

Intrusion attacks: The differences came up when we tried the application level or OS level exploits. Firewalls such as Sygate, Tiny and eSafe showed up the blue screen momentarily when we tried an IGMP flooding. Others such as Norton Personal Firewall, ZoneAlarm and NeoWatch became unstable with packet flooding attacks. However, such intrusion detection attempts had no effect on ZoneAlarm Pro, and the Network Associates products—McAfee Personal Firewall and PGP Desktop Security. These two, in fact, managed to do quite a bit of load balancing by ignoring such attacks totally, to the extent that we did not even come to know that we were being flooded with packets. We faced no problem with exploits targeted at software such as ICQ or mIRC, and the firewalls were able to ward them off easily.

Malicious Web sites: Detection of malicious ActiveX controls, scripts or Java applets was a grey area with all the firewalls (except Norton to some extent). Sites manage to exploit the vulnerabilities in Internet Explorer, Outlook Express and other software to steal information or upload files. Therefore, even if firewalls do not recognise such malicious sites, they should be able to warn you when data is being retrieved or written to your machine.

We were able to easily upload a .hta file, which runs a 'Hello World' message, to the Test Bench without the firewalls detecting any warning. Only Norton stopped the loading of a malicious Java applet on another site. We were also able to configure eSafe Desktop to block the .hta file from being uploaded. eSafe employs the method of selective file-sharing or 'sandbox'. So for each application, you can specify the directory rights (or even file rights) in terms of read, write, execute, delete, etc. For instance, you can specify that Internet Explorer will have no read rights over the Windows Desktop and System directory,



PGP Desktop wards off most intrusion attempts

Scanning through Web Sites

Before you start the firewall hunt, you can get your machine diagnosed online using Web sites that offer this service. These Web sites normally scan your machine using some commercial port scanner to see if there are any ports open and report the same to you.

Remember though, that if you are scanning from a dial-up access, this may take some time. And you cannot be beyond a gateway or a proxy which hides your IP address if you want your machine scanned.

Symantec's site even offers to scan your machine for Trojans and analyses the privacy features of your computer.

The ASP site of Network Associates Mcafeeasap.com, also gives a free trial to check your system for vulnerabilities using PGP CyberCop scanner. The only problem here is that you have to register first before availing of this facility. There are other Web sites which offer a paid service, and this is more useful if you have your own Web site or domain name. Some of the sites offering audit through the Web are:

www.symantec.com
www.grc.com
www.mcafeeasap.com
www.securityspace.com
www.automatedscanning.com

and will have rights only to the Temporary Internet Files and Cookies directory.

This effectively stops many ActiveX controls and malicious scripts that download files to areas such as the Desktop or Startup menu. Besides specific applications, you can even create a sandbox for all generic applications. For example, no application will have rights over the root folder. This is quite an innovative concept; no other firewall employed this concept.

SubSeven Trojan detection: Since we were testing the firewalls using SubSeven 2.2, which is the latest version and doesn't even show up in the processes list, we didn't really expect the firewalls to detect this version. But surprisingly, BlackICE immediately detected the SubSeven 2.2 Trojan

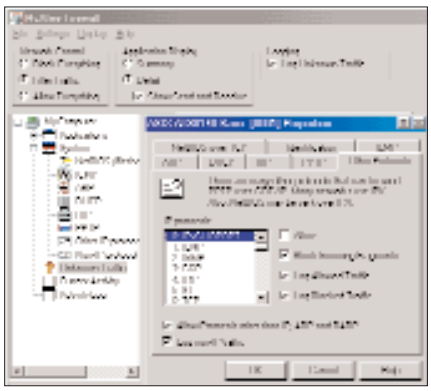


The feature-rich Norton Personal Firewall

when we tried running the SubSeven server and sending it through. None of the firewalls allowed access to the SubSeven Trojan when we started the server with the firewall running.

However, when we made the connection to the SubSeven server first and then started the firewall, quite a few were found wanting. Norton, ZoneAlarm and NeoWatch allowed the SubSeven client to issue commands such as opening the CD-ROM, or hiding the Start menu. Other commands such as packet sniffing didn't work with the first two, though NeoWatch allowed even these commands. This is a major security breach because if a Trojan can start its activities before the start of the firewall then it can bypass many restrictions. Firewalls that were based on creating application-level rules didn't face a problem because these were able to detect that some application was trying to connect to the Internet.

None of the firewalls we tested were good in all respects. Norton Personal Firewall, with support for blocking ActiveX and Java applets, could have been a good all-round performer but for its failure in the SubSeven Trojan test. ZoneAlarm Pro and BlackICE Defender performed well,



Block a range of protocols with McAfee

but they lacked protection against malicious Web sites. Interestingly, if you can get eSafe Desktop to work properly and tweak its settings, you might get the best protection including protection against Trojans and malicious sites. With its concept of sandboxes, you can virtually guard all your main system files. You can also manually specify ports that should be blocked for both inbound and outbound connections. The problem is that we faced a lot of difficulties in getting eSafe to work. Configuring this software is also not that simple and requires thorough knowledge of each application and port, so this is not something

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Security in Cable Space

Are you more prone to security breaches if you are on a cable modem network or DSL network? Conventional logic would seem to think so. While cable modems and DSL still assign you a dynamic IP address, the fact of the matter is that because you are in the 'always on' state, you have the same IP address for a longer duration of time. This gives a person who wishes to gain access to your machine more time to work towards it. Again, if you are sharing a cable modem, as most people are prone to, then your machine is on the same network as the others you are sharing the cable modem with, and it's possible that they can gain access to any shared folders that you might have. Apart from the general precautions that are valid for all computer users, as a cable modem/DSL user you should also take the simple precaution of logging off the cable/DSL connection when you are not using the Internet.

Performance Parameters

Firewall	Port scanning	Intrusion detection	Script protection	Trojan Detection
BlackICE Defender	✔	✔	✘	✔
eSafe Desktop	Partial	Blue screen	Yes (through concept of sandboxes)	✔
McAfee Personal Firewall	✔	✔	✘	✔
NeoWatch	✔	Highly unstable	✘	Partial
Norton Personal Firewall 2001	✔	Slightly unstable	Partial	Partial
PGP Desktop Security	✔	✔	✘	Partial
Sygate Personal Firewall	✔	Blue screen	✘	✔
Tiny Personal Firewall	✔	Blue screen	✘	✔
ZoneAlarm	✔	Slightly unstable	✘	Partial
ZoneAlarm Pro	✔	✔	✘	✔

that can just work out of the box.

Filtering capabilities

Since filtering is the mainstay of all firewalls, there were a number of parameters on which we tested the filtering capabilities of the firewall.

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Preset security levels: All firewalls normally start off with prescribing different security levels that you can use. These levels normally range from low, or not blocking any traffic, to medium and high security. With the highest security, you are normally off the network and will not be able to connect to the Internet. Depending on the firewall, you might have three to four preset levels. These are a good aid for a new user who is not familiar with the network protocols or ports.

However, if you want to understand exactly what these presets do, you aren't in luck. Most firewalls don't give any information on the ports or protocols that are blocked, and you can just forget about customising the preset levels. Two firewalls stand out in this respect—PGP Desktop and ZoneAlarm Pro. Both of them offer a description of the protocols that are being blocked and even allow you to customise the settings. PGP's settings are based on whether your computer acts as a client or a server, while ZoneAlarm Pro allows you to have different customised (or preset) settings for the local zone (your LAN) and the Internet zone.

Blocking ports and protocols: Very few firewalls just block a port—they usually combine it with specific protocols that have to be blocked on that port. Norton has a comprehensive feature as far as granting permissions for different protocols are concerned. You can even specify the services that will be allowed on those protocols and, if you desire, the range of addresses that can use these protocols. Norton also monitors specific HTTP

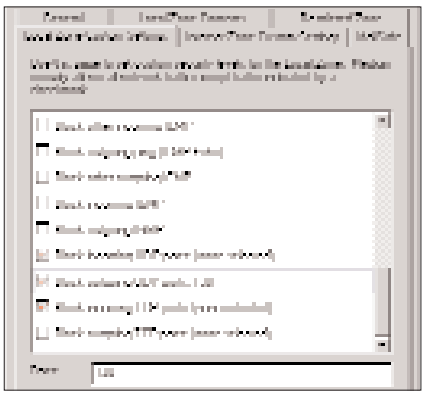
Breaking the Firewall

Is a personal firewall the solution to all your security problems? Certainly not, as many reports would seem to suggest. For instance, there's a utility specifically targeting ZoneAlarm and ZoneAlarm Pro that stops ZoneAlarm if it is running, and prevents it from starting. Called ZoneMutex , this is just a small terminate-and-stay-resident (TSR) program. Previous versions of ZoneAlarm were also prone to an Nmap scan which was done using port 67 as the identified port (nmap –g67 –sS <IP address>). *eWeek* magazine also reported another crack for BlackICE Defender that allowed to get past the firewall. The same crack was supposed to work with other firewalls such as Norton also.

Remember that the effectiveness of a personal firewall is to a great extend dependent on you and the rules you create. If a suspicious application tries to access the Internet, your firewall will most likely give a warning. Now, if you choose to allow this application access, then don't blame the firewall if the application turns out to be a Trojan. That's the main loophole most cracks for firewalls work around. It's the belief that if you are presented with an application that sounds familiar (say Explorer.exe or Iexplore.exe), you are most likely to give access to this application. It's therefore possible for a Trojan to rename itself as a known application and gain access to the system. Regularly monitor the activities of your firewall and use the NetWatcher utility that comes with Windows to check out your shares.

ports, and you can add other ports to monitor.

Tiny and ZoneAlarm Pro use the concept of blocking certain protocols on a range of ports. In both of these, you can select the protocol and the direction of traffic you want blocked, and then the ports on which the firewall will listen to block the traffic. eSafe or BlackICE had the same features, but the difference was that you had to manually enter the information for each port.



Block protocols in ZoneAlarm Pro

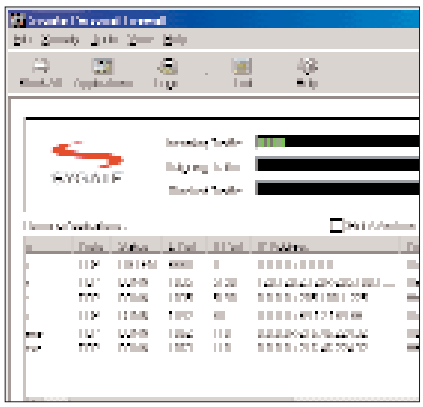
McAfee was a bit different in terms of the protocols that it supported. While most firewalls restricted themselves to TCP and UDP, or added IGMP and ICMP, McAfee had support for allowing or blocking RIP (Routing Information Protocl), ARP, PPTP, etc. In terms of customising and ease of use, the simplest to use to block ports and protocols were ZoneAlarm Pro and Tiny.

Application-level security: The simplest way a firewall works is by restricting or granting permission to applications to access the Internet. The first time an application tries to access the Internet, the

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firewalls open up a response box which you can use to allow or disallow that application, and also tell the firewall to remember this rule for future reference. This is a very important feature because it is the best way of knowing if some unknown application (or Trojan) is trying to access the Internet. In some firewalls, application-level filtering was bundled along with the feature to block ports or protocols. Sygate was the best in this feature. After you use an application for the first time and create a rule to allow it, you can specify the IP addresses that this application can use, the range of ports that are allowed, and even schedule a period-range during which the application can be run. ZoneAlarm Pro also offers some features related to application-level filtering in terms of ports and protocols that are related to the application. You can also specify whether the application has access to the local zone or Internet zone, and whether the application can act as a server to other programs trying to connect to it.

Blocking IP addresses and Web sites: Although it is not traditionally part of a firewall's job, most firewalls nowadays sport this feature. They can be used to block access to malicious Web sites or as a content filtering tool. They can even restrict access to machines in the local network. Most firewalls just ask you to specify the IP addresses that have to be banned. Norton allows you to ban IP addresses or host names (including subnets) in conjunction with the protocol. PGP works in a similar fashion. ZoneAlarm Pro has a separate module that allows you to create a restricted zone based on IP address or host name. In some firewalls, you can cut off access to the Internet using the IP address range, or by setting the security level to the highest. ZoneAlarm Pro has a single icon that allows you to immediately stop access to the Internet.



Sygate is the easiest to configure

Into the Network Neighbourhood: Intruders don't just exist in the Internet space—they could be people who are sitting next to you in a cyber cafe or in office and sharing the same network connection. So, firewalls should ideally also protect you from intrusions coming from the local network, and even deny certain computers access to files shared on your PC. Most firewalls didn't sport this feature, and even if they did, it didn't work properly and we could easily access shares on the Test Bench. eSafe, Norton, ZoneAlarm and ZoneAlarm Pro were the only ones that allowed disabling of file sharing to banned computers on the local network. In Norton, you could do that by restricting protocols to local addresses, while ZoneAlarm and the Pro version have separate settings for the local network. In eSafe, the personal firewall module doesn't allow blocking Network Neighbourhood, but in the Administrator module, under the privileges for the user, you can cut off access to local networks.

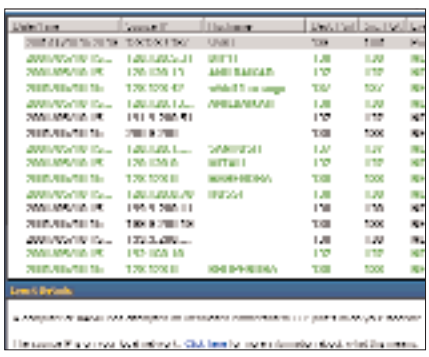
Other features: Different firewalls came with many other utilities that added to the feature list. Norton and eSafe have the privacy or protection of confidential information feature. Here, you can specify confidential information that you do not want transmitted to any Web site or non-secure site. So, you can easily enter some digits of your credit card, and block this information from being passed. Norton also allows you to block referrer logging, that is, sites you visit will not know where you came from. You also have the provision to block cookies. Some firewalls also come with password protection features. Tiny is the only one that has a remote administration utility. eSafe also ships an antivirus package along, while PGP has features relating to digital signatures and protection for VPNs (Virtual Private Networks).

Among the various firewalls, it is evident that ZoneAlarm Pro and Norton Personal Firewall 2001 have the maximum number of features.

Ease of use

A firewall may perform well and have loads of features, but if it is difficult to configure and access the features, then all the good qualities are of no use. Ease of use is therefore an important criterion in choosing a firewall, and we looked at factors such as interface, configuration and reporting to judge the firewalls.

Configuration: With most firewalls, you could start working out of the box using just the default setting, without having to configure anything. This is true especially in the case of application-level firewalls. Here, every time an application tries to



Filter the results in NeoWatch

Tracing back the Intrusion

If you are facing a number of intrusion detection attempts, then if you have the time and inclination, you can take some proactive measures. Most firewalls tell you the IP address of the machine that made the intrusion attempt. A firewall such as NeoWatch also comes with the NeoTrace utility that allows you to backtrace to where the intrusion attempt came from, and also report the intrusion to its Web site. NeoTrace basically performs a trace route operation on the IP address to find out where the address originated. You can do the same using the command tracert <IP address> in your DOS prompt. ZoneAlarm also allows you to report an intrusion to Zone Labs, and also monitors the information that is sent, so you can even keep your identity a secret. You should report such attacks as it helps security organisations build a database of places from where intrusion attacks are being made, and try to ensure that they don't happen again. If you get the IP address, even you can report the intrusion to the ISP from where the attack came or to the domain-hosting provider. The ISPs and Domain space providers normally have a policy wherein their IP addresses cannot be used for such intrusion activities, and can therefore remove the offender from their network.

access the Internet, you are presented with the option of allowing or blocking it. Even for configuring other parameters such as ports or protocols to block, you normally have a tabular or drop-down menu to select the options.

If, however, you need an example of how a great software can be killed by bad configuration parameters, don't look beyond eSafe. Getting this software to work was a big difficulty. The software gave an 'illegal operation' error on two machines due to problems with the Winsock implementation. Finally, we had to format our Test Bench again and load eSafe before other applications to get it working. Yes! All set, we thought… but no, that was just the beginning of the problems.

Try installing any software, and eSafe



Supressing alerts in ZoneAlarm Pro

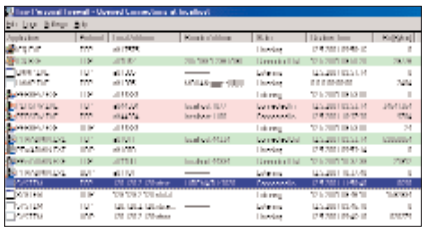
comes up with a number of messages that are plain irritating. You cannot stop the eSafe engine without deselecting the option in the Windows system configuration, which means that you have to restart the machine. Again, eSafe employs the good concept of user rights, wherein you can have different firewall settings for different users based on the Windows login. But every time you change some configuration for the firewall, you have to again assign the configuration to the particular user for the changes to take effect.

Strangely enough, quite a few firewalls do not give the configuration option in the main toolbar itself. Instead, you have to navigate through some menus. In the case of Norton, you have to go through two levels, whereas Tiny has two separate windows for 'status' and 'administration'. ZoneAlarm and ZoneAlarm Pro are quite good in that respect with icons for different options arranged in the main window itself.

Danger signs: Personal firewalls do their work in the background while you are involved with some other application. The icon in the taskbar is probably the only way you come to know that the firewall is still alive. But then, how do you know when you are being attacked?

One way is to have a pop-up menu for every intrusion detected. But imagine being disturbed every 30 seconds with an alert screen just because somebody happened to access your shared folder in the local network. Alternatively, these firewalls indicate through flashing signs in the taskbar what kind of attack you are under.

The icons that Sygate used were among the most intuitive and were clearly visible even in the taskbar. Down and up arrows were used to denote inbound and outbound traffic, respectively, and red signals denoted blocked traffic or intrusion detection. Even with Norton, you could make out an alert from the way the icon flashed. ZoneAlarm had these bright yellow colour flashes that were hard to miss, although they didn't tell you about the nature of the attack. Some firewalls also allowed you to send an alert to an e-mail address or play an audible sound when an intrusion



Tiny is one of the free personal firewalls

occurred. But if you keep a high security level, be prepared for friends or colleagues putting up a No-honking Zone sign near you in protest.

Keeping track: Event logs are the best way to keep track of the activity in your disk. Basically, alerts are created on the basis of the rules you have created, and most firewalls allow you to log these alerts to a file. While McAfee has an activity log feature in its menu, the log file was one of the worst, filled with hex-dump and http headers of Internet activity that are of no use. Sygate kept the best logs. It had event logs in four categories: Security logs (notification of all intrusions), System logs (basic system information relating to the starting of Sygate), Traffic logs (details of the network and Internet traffic) and Packet logs (information on the packets transmitted, along with the hex-dump). All these details were given in neatly tabulated format, along with details of the local and remote host and the ports on which the connection was made. Just don't keep the file size for the packet logs too high, since it puts quite a bit of load on the system.

Even Norton had many logging options, but you can't exactly make out the fine distinctions between the different logs. BlackICE and Norton also provided a graphical representation of the intrusion attempts in terms of the history of the

Reading the Warning Signals

Firewall	Configuration ease	Intuitive Taskbar icons	Sounding alerts	Log file format	Filtering logs	Graphical representation
BlackICE Defender	Partial	✘	✔	Average	✘	✔
eSafe Desktop	✘	✘	✔	Average	✘	✘
McAfee Personal Firewall	✘	✘	✘	Poor	✘	✘
NeoWatch	✔	✘	✔	Good	✔	✘
Norton Personal Firewall 2001	✘	✔	✘	Good	✔	✔
PGP Desktop Security	✘	✘	✔	Average	✔	✘
Sygate Personal Firewall	Partial	✔	✔	Good	✔	✔
Tiny Personal Firewall	✘	✔	✘	Average	✘	✔
ZoneAlarm	✔	✔	✔	Average	✘	✔
ZoneAlarm Pro	✔	✔	✔	Average	✔	✔

SCORE BOARD

Specifications

DETAILS OF THE FIREWALLS

Firewall	BlackICE Defender 2.5	eSafe Desktop 2	McAfee Personal Firewall 2.1	NeoWatch 2.2	Norton Personal Firewall 2001 2.5	PGP Desktop Security 7 (Evaluation)	Sygate Personal Firewall 4	T w
Performance								
Blocking port scans	Yes	Partial	Yes	Yes	Yes	Yes	Yes	Y
Intrusion blocking	Yes	Blue screen	Yes	Highly unstable	Slightly unstable	Yes	Blue screen	B
Trojan Detection	Yes	Yes	Yes	Partial	Partial	Partial	Yes	Y
Features								
Preset levels	4	3	3	5	3+3*	6	3	3
Port blocking	Yes	Yes	No	No	Yes (with protocol)	No	No	Y
Protocol blocking	Yes (with port blocking)	No	Yes	No	Yes	Yes	No	Y
Application level security	No	Yes (with sandbox)	Yes	No	Yes (with protocol)	No	Yes	Y
IP address filter	Yes	No	No	Yes	Yes (with protocol)	Yes (with protocol)	Yes	Y
Blocking Web sites	No	Yes	No	No	Yes	No	No	N
Restricting file sharing	Yes	Yes	Yes	No	Yes	Yes	No	N
Privacy feature	No	Yes	No	No				N
Ease of use					Yes	No	No	
Configure from main menu	Partial	No	No	Yes	No	No	Partial	N
Intuitive taskbar icons	No	No	No	No	Yes	No	Yes	N
Sounding alerts	Yes	Yes	No	Yes	No	Yes	Yes	N
Filtering logs	No	No	No	Yes	Yes	Yes	Yes	N
Graphical representation	Yes	No	No	No	Yes	No	Yes	Y
Contact & Developer	Network ICE	Aladdin Knowledge Systems	Network Associates (Phone: 9821019104, E-mail: annette_castelino@nai.com)	NeoWorx	Symantec (Contact: Tech Pacific, 022-5960227, adil@techpacindia.com)	Network Associates (Phone: 9821019104, E-mail: annette_castelino@nai.com)	Sygate Technologies	T
Web site	Networkice.com	Esafe.com	Nai.com	Neoworx.com	Symantec.com	Nai.com	Sygate.com	T
Price	$40 (approx)	Free for personal use	$29	$40	$50	$60	Free for personal use	F u
Rating	**B**	**B+**	**B**	**B-**	**B+**	**B+**	**B+**	**B**

* Levels for Security and Privacy ** Levels for local zone and Internet Zone

attacks and the packets that were blocked or filtered. With BlackICE, you could even filter the logs in terms of their severity, while other software such as Sygate allow you to view logs of last 24 hours, last week, etc.

Both ZoneAlarm and ZoneAlarm Pro logged the results to a text file, but in the Pro version you had an option to suppress logs for common events such as accessing shares. However, ZoneAlarm restricts the maximum alerts at a time to 500, after which you have to clear the old alerts to receive the new ones.

Pricing, support and documentation

The last parameter under consideration was support, documentation and price. There are firewalls that are free for personal use. This means you can use them at home, but using it in office would require you to purchase a license. Among the 10 firewalls tested, eSafe, Tiny, Sygate and ZoneAlarm are free for personal use. The price of the other firewalls ranged from $30 to $50 (approximately Rs 1,400 to Rs 2,300), though PGP was pretty expensive at around $60 (approximately Rs 2,700). This is because PGP also includes support for digital signatures and VPN.

What is the difference between a free version and a paid one, you may well ask? Apart from the fact that the firewalls are only free for personal use, there is a noticeable difference between the paid software and the free ones, as evident in ZoneAlarm and ZoneAlarm Pro. The Pro version has everything that the free version lacks and even performs better in the intrusion detection tests. There's no instability with ping floodders and IGMP attacks and there are a number of feature enhancements that allow you to customise almost every feature.

However, eSafe really gives you value for money. It ships with an antivirus and a system monitoring utility, and can be tweaked with a bit of difficulty to give very good performance.

Apart from Tiny, the other firewalls came with some documentation and help files. Even NeoWatch had only online support. McAfee had one of the most illustrative guides, while the products from Zone Labs started off with a tutorial. NeoWatch and ZoneAlarm also featured reporting of intrusion attempts to the developers for information.

All the firewalls also offered a feature to update the software—in some cases this was automatic and in other cases you had to manually update from the Web site.

Safety Measures

- Disable File and Print Sharing if you are not going to be on a network.
- Update your antivirus signature files regularly…don't be lazy about it. Use a specialised Trojan cleaner if necessary.
- Regularly apply security patches to your software (especially Windows and IE).
- Don't open e-mail attachments if you don't know what they contain.
- Don't allow unknown applications access to the Internet or to your machine. Use the System Information utility (Start > Accessories > System Information) to check for the Running Tasks. To turn off a specific application, you have to edit the registry.
- Regularly check the event logs of your antivirus software or personal firewall.
- Disable ActiveX and Java and uninstall Windows Scripting Host if not required.
- Turn off macros in Microsoft Word and Excel or keep macro protection on.
- Use the command **netstat -a** to check the open ports in your machine. Check the open ports against the common list of Trojan ports to see if Trojans are listening to some ports.

CONCLUSION

To say that there is a proliferation of security-related products these days is an understatement. Major players such as Symantec or Network Associates have a range of suites for the same target audience, each with slightly varying features. For instance, apart from Norton Personal Firewall, Symantec also has Norton Internet Security and Norton Internet Security Family Edition, which extends the firewall feature to include blocking of ads, parental controls, etc.



Similarly, McAfee has McAfee Internet Guard Dog (also in a Pro version), which essentially does the same. The feeling of paranoia, especially in cases of e-commerce transactions and given the number of defacements of Web sites are the primary reasons for such a large number of new software to emerge in this category.

As we said earlier, even in the realms of anonymity, you can be at risk. And if you are not worried about spending around Rs 2,000, then you should definitely go in for a paid personal firewall. **ZoneAlarm Pro** wins easily when compared to the other firewalls.

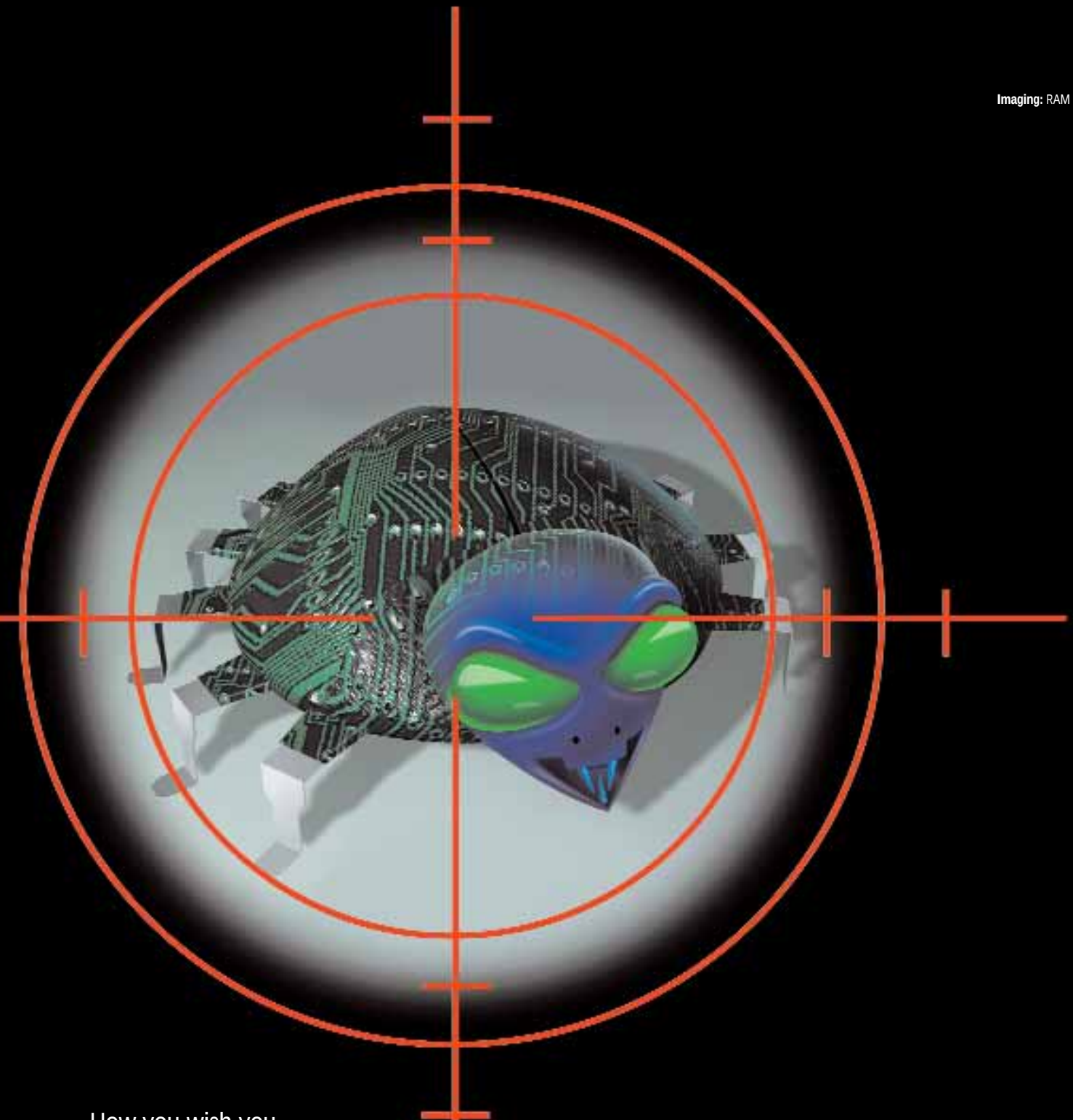
It did well in all the parameters—its performance was good barring the lack of support for ActiveX controls, it had very good features that were highly customisable and more than anything else, using ZoneAlarm Pro is not at all difficult.

The nearest competition comes from Norton Personal Firewall 2001 (version 2.5). The only area where Norton didn't fare that well was in the SubSeven Trojan detection test. Otherwise, in terms of features it was more than a match for ZoneAlarm Pro with its inclusion of privacy features as well.

But using Norton isn't as simple and that's another area where it lost out. A new version of the Norton Personal Firewall (version 3.0) has been released, and it's quite possible that this version is better than the one we tested, with enhanced performance features.

However, if you want to use a firewall just for personal use, and have a problem with the price, then you can easily use one of the free firewalls. Here, it's a toss-up between **ZoneAlarm** and **eSafe Desktop**. If you can configure eSafe properly, you will get much better performance out of it than what ZoneAlarm will give. Add to this the fact that eSafe comes with its own antivirus scanner, which can be quite useful.

However, don't expect a personal firewall to be a cure for all your problems. There are a lot of precautions you have to take beyond installing a firewall before you are truly in the safety zone.



How you wish you could get rid of those viruses on your machine. A look at the top antivirus software for your needs

ROSSI FERNANDES AND YATISH SUVARNA

Yikes, what is that weirdly named file on your hard drive? Is it a game? Is it a joke? Guess again—you're infected by a virus! With the advent of broadband Internet connectivity, DVDs and the ubiquitous CDs and floppy disks, there exist many potential ports through which malicious files and content can enter your computer. Add to that backdoors or certain sections in applications that developers keep open either wilfully or for development work. Potentially harmful files can be placed on your computer through these ports. Once this happens, there are programs that can be used to monitor or even control the functioning of the infected computer.

So remember that the next time your kid sister downloads that new game from the Internet or one of the guys at work accesses a new Flash-enabled Web site, your home computer or office network could be subject to virus threats. The consequences of having a virus in your system could be anything—from an annoying message on your monitor, to a full-blown failure and corruption of your data, operating system and applications. So long as there is software, there will always be a certain breed of people who are intent

BUSTERS

on wreaking havoc on computers for no apparent reason. Hundreds of new viruses are put out in the wild every year. Starting to feel panicky? One of the best approaches to battle this scourge is to face the problem head-on with the help of antivirus (AV) software.

TEST PROCESS

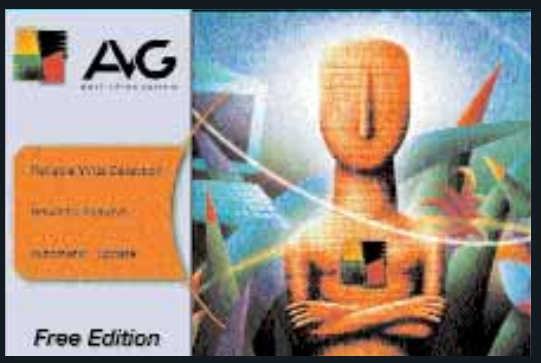
The antivirus comparison test was done on a system running a P-III 700 processor with 64 MB of RAM. The hard drive used had a capacity of 5.7 GB. The operating system on the test bed was Microsoft Windows 98SE, which was loaded with all the drivers. We took an image of this system before running the tests on each of the AV packages. This disk image was restored after each package was tested.

A good antivirus should be able to find present-day viruses and detect code that could be potentially harmful. And, of course, it should be able to successfully remove the malicious portion of an infected file while leaving the data intact. The emphasis of this test was more on the detection feature, since an antivirus software will usually clean the files it detects (or an update to the definition files will be able to do that).

To run the antivirus software through their paces, we took a collection of around 7,400 viruses along with some of the popular Trojans that are floating around. This collection was calculated to put a lot of strain on the antivirus software. Most of the viruses used were exe and com infecting viruses along with some boot sector viruses, including a mix of actual signature files and infected files. The collection also included Trojans and macro viruses in the archive.

There were two main virus scanning tests, which included the main uncompressed file scanning test and the compressed virus scanning test that we ran on each of the antivirus software packages. In this comparison test, we only evaluated antivirus software targeted for personal use or a small networked environment. We did not look at enterprise-class antivirus protection suites or client-server based antivirus applications.

The overall score for each software was decided by logging the various features, performance rates, ease of use and test results into a spreadsheet. We also looked at aspects such as availability of regular updates. Based on the weightage assigned to the various parameters, we reached the final score.



Detecting the deadly viruses

Whether a virus is detected or not is the most important performance criterion. We tested the detection rates by two methods—detection of 7,400 viruses in an uncompressed format, and detection of 4,700 viruses in a compressed file. The viruses were a mix of actual signature files and infected files. In the case of infected files, we also looked at the ability of the antivirus software to clean the viruses. Another thing we did was to check the ability of the virus scanners to detect the 10 most common viruses.

Most of the virus scanners performed well in detecting viruses in the uncompressed format, except for QuickHeal, which was able to detect an abysmal 57 per cent of the viruses. The other virus scanners detected around 90 per cent of the viruses. Antivir came out the best, with a 98.26 per cent detection rate, followed closely by InoculateIT. All the virus scanners were able to detect and clean the 10 common viruses.

The differentiation among the virus scanners was quite noticeable when we looked at the detection rates for viruses in compressed files. Three of the eight virus scanners (QuickHeal, eScan, and McAfee) actually buckled under the strain and crashed while attempting to detect viruses in compressed files. Apart from AVG, InoculateIT and Norton, even the others didn't perform well, with F-Secure detecting only about 2 per cent of the viruses in the compressed files.

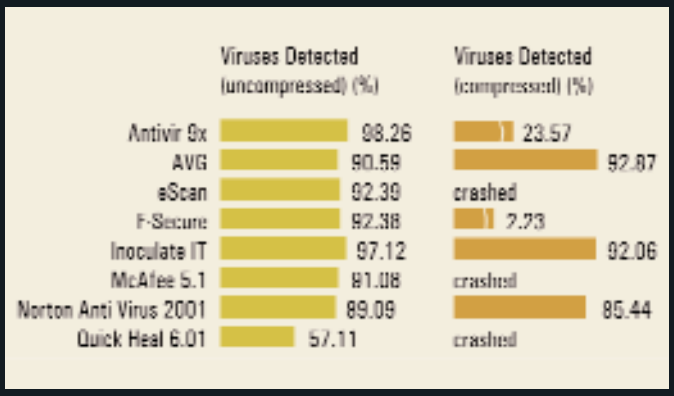
Time for scan

Do you shy away from doing a full system scan on a regular basis because just the thought of the hours it will take puts you off? Consider a software such as InoculateIT, which has a good detection rate, and is able to scan the hard disk (of a 1 GB partition) in 6 minutes flat. To a large extent, the scanning time is dependent upon the options that you have selected. Pure detection is faster, but if you select options for cleaning,

Find it on digit interactive
More Info on the test process and the products tested
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prompting, or performing quarantine, then the time taken increases. That's probably one of the reasons why Norton took as much as 48 minutes for the entire scanning process, while McAfee took 54 minutes. It also seemed very strange that QuickHeal took 51 minutes for a scan, considering that its detection rate was quite low.

There is hardly any difference if you scan for all files (including compressed files). Again, InoculateIT took just 4 minutes to scan the partition with the compressed files. Admitted, InoculateIT is fast, but then it didn't actually manage to clean the infected files very thoroughly. Norton, which had a good cleaning rate too, managed the scan in 40 minutes. Three of the software crashed at varying points while scanning within compressed files.

Eating up resources

It's important that your virus scanner does not eat up a lot of your system resources. Otherwise, if you do a full-system scan, you will have no option but to sit twiddling your thumbs for the 30-odd minutes it takes to scan. Even the auto-protect feature shouldn't hog memory, else your other applications may become slow.

We used a utility called Cache Manager to evaluate how resource-hungry these software were and how much system memory was consumed while these programs were running in the system tray. F-secure took up the most system resources—9.3 MB of the available RAM in the system. Next came eScan with 4.6 MB. One of the leanest programs was AVG, which just ate 2 MB of system resources. However, the lightest of them as far as resources are concerned was QuickHeal, which consumed only 1 MB of RAM.

Another aspect we analysed was the difference in boot-up time. Antivirus software normally checks your machine during the boot process, so there is an increase in boot-up time. If you are a performance freak, you will want this difference to be minimised even while you get maximum protection. With a 35-second time difference, Norton certainly increased the boot-up time considerably. On the other hand, Antivir made just a 3-second difference.

Therefore, if you happen to use power- and resource-hungry applications such as image-editing or 3D authoring software, then remember that the heavier antivirus software will definitely slow down your other applications while it is running. If your main focus is using your application, you might do better to go in for an antivirus package that is a lesser strain on the system, even if it compromises on some functionality.

Features

All the software should offer standard features such as options for boot sector scans, scanning before startup, creating emergency diskettes, scanning within compressed files, etc. Feature-rich scanners will also include options for scheduled scanning, network scanning, scanning within e-mail, heuristic scanning, etc.

Norton 2001 was one of the most feature-rich antivirus software. It provided for script blocking (preventing viruses such as Melissa), task-based scanning, scanning before you download, scanning e-mail, etc. With Norton, you can specify the auto-protect feature to work even when you just access a folder and don't necessarily double-click on the executable. You can also specify the file extensions that you want to be checked apart from the default ones.



McAfee sports a cool interface and is rich in features

Even QuickHeal has standard features like scanning inside compressed files (.ZIP, ARJ) apart from other features such as scanning inside compressed executable files, heuristic scans, etc. There is also a File Integrity option to recover a file from unknown virus infection. The other features include live database updates, online protection presence and a Virus List containing virus information. A variety of scanning configurations, such as the possibility of including and excluding specific file types, etc, generating scan reports, scheduled scanning and rescue information, is also available.

F-Secure has an option wherein the network administrator can configure global security policies for the company and automatically update different servers within the company with the predefined security policy. InoculateIT was a disappointment. After having done so well in its detection capabilities, it lost out on the features count.

Ease of use

Understanding the configuration and interface is quite important if you want to get the best out of your antivirus software. This is especially true of the auto-protect option if a virus is detected. Most antivirus software offer options such as automatic cleaning, prompt for response, delete if the virus cannot be repaired, etc. If you configure this beforehand, the virus scanner will work in the background without unduly disturbing you.

In this respect, Norton offers a number of configurable options, including graphical alerts. McAfee and QuickHeal provide some customisation features as well. One of the simplest to use was F-secure with its totally integrated single-point menu and icons. McAfee uses the concept of panels wherein the options are lined up in one pane and clicking on them gives you multiple options.

Reporting features are equally important if you want to understand the nature of the antivirus attacks you are facing and which files they are originating from. All the antivirus software allow you to create logs of your scan. These logs are automatically generated when a virus is

SCORE BOARD Specifications

The Antivirus Details

Name	Antivir 9x	AVG	eScan	F-Secure	InoculateIT	McAfee 5.1	Norton AntiVirus 2001	QuickHeal 6.01
Contact	Free AV	Grisoft	Microworld Software Services	Crystal Solutions Pvt Ltd	Computer Associates	McAfee	N&N Systems and Softwares	Cat Computer Services
Price	-	-	Rs.1800	Rs.2500	-	Rs 1,200	Rs 1,600	Expree-Rs.500 Standard -Rs.1800
Phone number	-	-	022-8265701	022-5093111	-	-	022-4444601	020-6122173
Fax number	-	-	022-8344750	022-5093112	-	-	022-4465097	020-6122173
Web site	www.free-av.com	www.grisoft.com	www.mspl.net	www.f-secure.com	http://antivirus.cai.com	www.mcafee.com	www.symantec.com	www.quickheal.com
E-Mail	-	-	vig@mspl.net	-	-	-	info@bom.nandn.com	cat@vsnl.com
Features								
E-mail checking	NO	YES	YES	NO	NO	YES	YES	YES
DOS bootup check	NO	YES	NO	NO	NO	YES	YES	YES
Browsing virus scan	NO	NO	NO	NO	YES - proxy	YES	YES	YES
Download scan	NO	NO	NO	NO	NO	YES	YES	YES
Script blocking	NO	NO	NO	NO	NO	YES	YES	NO
Compressed File Scanning	YES	YES	YES	YES	YES	YES	YES	YES
Performance								
Viruses detected (uncompressed)	98.96%	90.59%	92.39%	92.38%	97.12%	91.08%	89.09%	57.11%
Viruses detected in compressed files	23.57%	92.87%	crashed	2.23%	92.06%	crashed	85.44%	crashed
Time taken to scan compressed viruses	0.06 seconds	0:04 seconds	crashed	0:40 seconds	0:04 seconds	crashed	0:34 seconds	crashed
Resource (MB of RAM used)	2.5	2	4.6	9.3	3.5	4	4.5	1
Boot up time difference	3	22	19	22	7	15	35	9
Rating	B	B+	B-	C+	B+	B+	A-	B-

detected or cleaned. F-Secure has a log that opens up as an HTML page in your browser. Norton has one of the best interfaces, while McAfee comes a close second.

Get the update

Even if the antivirus software gives good detection rates, there's no way the software can keep track of the new viruses coming up every day. The only way to be up-to-date is by regularly installing updates to the signature or virus definition file. The software normally allows for automatic updation of files or you can download the updates from the Net. Earlier, while updating the definition files, you had to manually stop the auto-protect feature, copy the definition files to the directory where the software is installed, and then restart the machine. Now, you can dispense with this manual process. The antivirus program updates the file on its own without even asking for a restart.

In McAfee, updating your virus definitions can be a bit time-consuming because sometimes the entire scanning engine is updated instead of just the virus definitions. There is no concept of progressive updates—that is, if you update your virus definition files for a particular week, the next time you update, you should just be given only the new virus definition files.

Some software also give you options for what you want to update. You can choose just to update the rescue disk, the virus definition files, or even the scanning engine. F-Secure offers you even more options wherein you can select the categories of definition files (macro, boot sector, etc) that you want to update. You can select the automatic update feature or even schedule updates, but for that you have to be online at the time you have scheduled the update, and with a dial-up line this might not always be possible. Norton even supports a feature wherein you can send a suspicious file for scanning at their research labs.



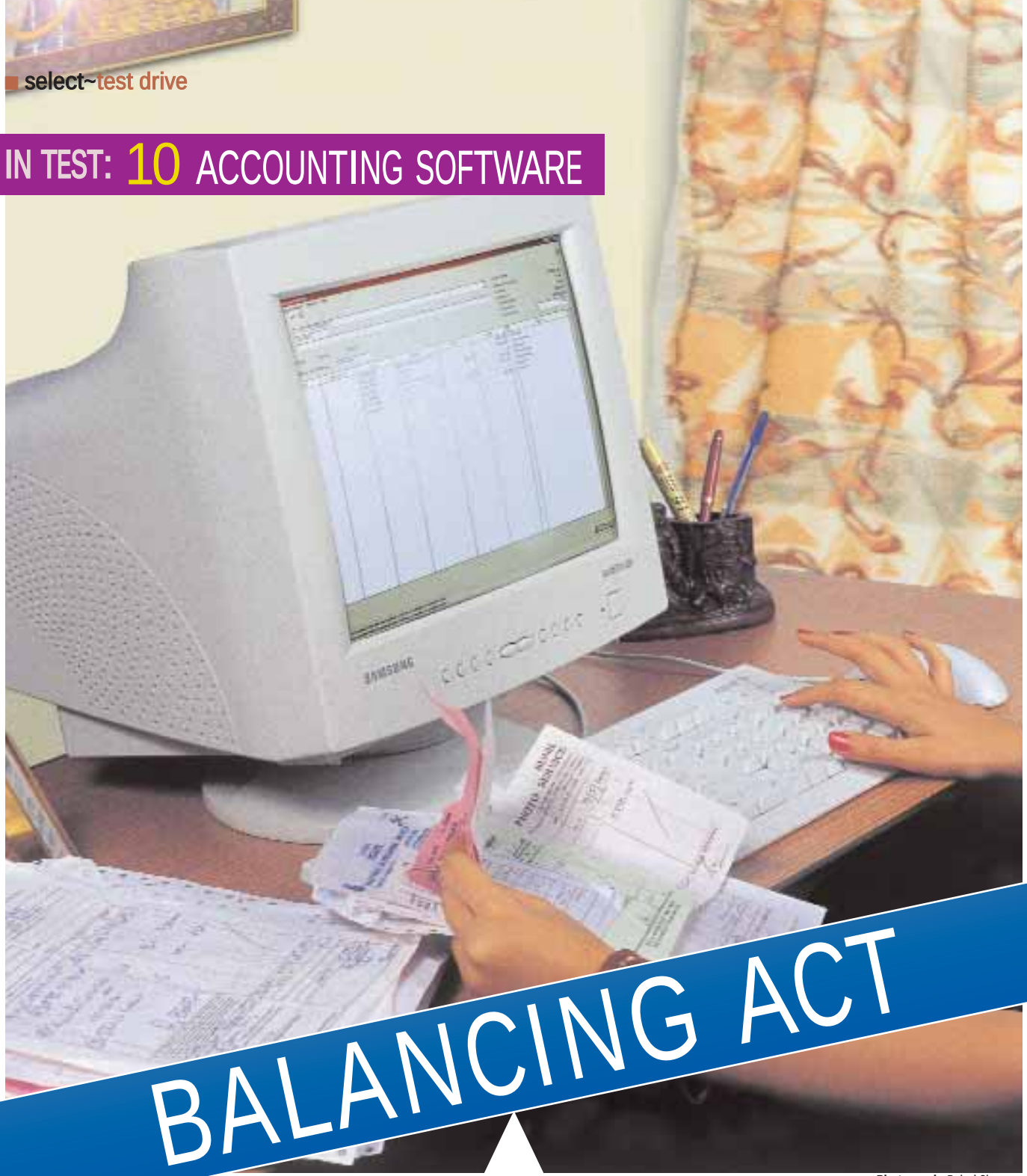
CONCLUSION

Among the viruses that were tested, InoculateIT, AVG and Antivir are really coackages that you can look forward to for general system security, Antivir has a good virus definition set, and had the maximum detection rate. InoculateIT also had quite a good detection rate, and it did well in checking for viruses within compressed files.

AVG had a problem in cleaning some of the infected files and therefore lost out on that count. In spite of impressive features, McAfee failed in detecting viruses within compressed files.

The best all-round performer was **Norton AntiVirus 2001**. Good detection and cleaning rates, excellent features and Live Update options truly make it the best performer. True, it's a bit resource-hungry, but what the heck, you can compromise that much to keep your system bug-free.

IN TEST: 10 ACCOUNTING SOFTWARE



BALANCING ACT

Photograph: Rahul Sharma

Accounts in a big mess? Whip them into shape with financial accounting software

MITUL MEHTA

The sheer thought of keeping accounts can make even the biggest business stalwart dizzy, considering the tedious nature of the work and the enormous effort that goes into maintaining account books and preserving them for the 10 years required by the law. Little wonder that most people have switched over to using computers for this purpose.

Of course, who hasn't wished that financial accountancy programs would be easier to operate, that the interface would be simpler, or that it wouldn't be so darn difficult to figure out how the whole thing worked?

Over the years, software developers have been trying to keep the customer satisfied by making fundamental changes to make their software more user-friendly. They have also been trying to zoom in on the specific needs of different types of users, because in practice, these software have to cater to a large variety of customers, from home and SoHo (small office



home office) users to medium and large enterprises.

This comparison test focuses on software created for the SoHo and small business segment. While Tally has always been a hot favourite of this segment, the past year has seen competition heating up with newer and better accounting software being launched, offering you more choices.

TEST PROCESS

To determine the overall performance of the accounting software, we evaluated a range of characteristics. These included the type of features the software incorporated, whether it offered value for money and whether it provided adequate help for a person to be able to work with it smoothly and without hassles.

Features, rather than technical specifications, form the core of a test such as this. We made a note of features such as inventory control, management information systems, multilingual support and security, and gave points for each of them to help us compare the products.

Cost is an important consideration. A product may be cheaper but may have only a single user license, which would be beneficial for a home user, but not for a SoHo user who has more than one computer. The software should be able to balance efficiency and features with a suitable price.

Features

The packages we tested contained a host of features, from a simple data entry screen that even a novice can understand to printing MIS reports that only top managers and CFOs require to make important business decisions.

Some of the features we gave more weightage to were inventory control, security, support for graphics in the form of graphs and charts and MIS support for accounting as well as for inventory.

Out of the packages we tested, only two were DOS-based. The rest were 32-bit applications running on MS Windows with a graphical user interface.

A convenient feature for new users is templates. FACT, Tally and Wings, all have good templates. Simply Accounting even has a template for creating and selecting a type of company, where you get to choose from at least 50 different types of businesses. The DOS-based packages lacked this feature.

Document designing is another feature of interest, because not all default reports and documents will suit your requirements. This feature was well-supported by DOS-based applications like ACE and Easy Accounting. But they were no match for Windows-based packages such as Simply Accounting, which comes with a Crystal Report writer that gives users complete freedom to create and design reports of their choice.

Regarding MIS reports, most of the packages tested provided a basic level of reporting such as accounts receivable/payable, cash/bank book, and ageing analysis of debtors/creditors/stocks. Tally has the distinction of providing the maximum number of financial reports. It gives users the option to use ratio analysis to determine, at any point, the company's working capital, operating cost, return on investment, return on working capital, etc. Simply Accounting stands out because of its ability to present reports graphically as well.

Like housekeeping is important in every aspect of life, so it is with these packages. A lot of data input takes place and maintaining that data in a healthy format is essential. It is important that the software allows you to back up data not only on floppy disks, but on other available media as well. And if the package can support export and import of data, that is a definite plus point.

Once again, Account 21, Tally, FACT and Wings scored over the others. Account 21 even has a proprietary explorer that allows users to view complete details at a glance, and even make changes if required. While Simply Accounting does allow you to take backups on ➜

End-user Talk

We talked to several people who have used all kinds of accounting software on the job and found that many big companies prefer to use Oracle as their main database and accounting software because it allows them to do live updating of accounts and calculations with ease. Others told us that their companies used custom-made software to satisfy their needs. However, there are others, such as JM Waghela, who have been using accounting software such as Tally since a long time. Tally has been a long-time favourite with the accountancy community. People like using it because of its simple interface, and also because they are so familiar with all its aspects by now.

Although old habits die hard, we decided to introduce Waghela to some other accounting software. He found Wings 2000 Pro really interesting and easy to use. So much so that when we asked him which one he preferred, he picked Wings 2000 Pro!

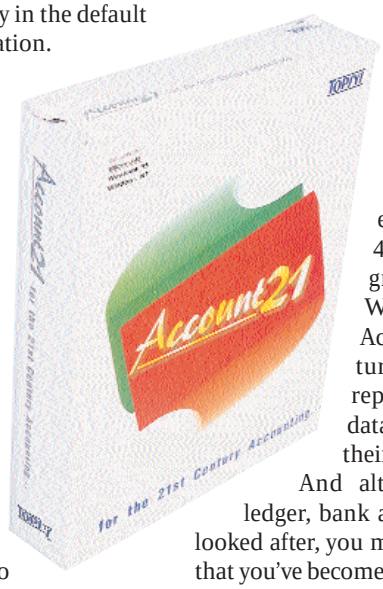
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any media, export and import can only be done from the MS Access database management application.

Another feature we checked out was whether the application allows viewing a screen in full-screen mode. We found that Tally, Simply Accounting and Arthalekha had the option of being viewed on the full screen, whereas the others were limited to being viewed only in the default size specified by the application.

Arthalekha has the distinction of being completely multi-lingual. At the main menu itself, there is a toggle button that allows you to switch between Hindi and English. While Wings Pro also provides multi-lingual support, it does so at the report level and not at the menu level.



Value for money

While price is undoubtedly an important factor, it should not take precedence over the quality of the software. So the key is to keep the price factor at the back of your mind and first look out for features you need. Ask yourself what you want out of the financial accounting software. Is it just the usual ledger journal and voucher entries that need to be taken care of? Or do you want advanced features such as inventory control, MIS, multi-user password facilities, etc? There is no point in shelling out all that extra money for a leading software if you'll never use half of its hi-fi features. So first identify the software that fulfils your needs, and then see if the price tag is justified.

Of the software we tested, Wings2000 is absolutely free and it provides some really decent features that would satisfy most home users. But when it comes to advanced features, it falls flat and that's where software like Tally, FACT and Simply Accounting score.

If you have a low-end machine such as a 486, a DOS-based program is the way to go. While ACE and Easy Accounting provide features such as graphical representation of your data and password facility, their prices are a bit steep. And although your journal, ledger, bank and cash details are all looked after, you might still miss the GUI that you've become used to with Windows.

Account21 would suit a small businessperson, with features such as multi-currency, reminder letters to debtors and good security options, although you would have to pay more for a multi-user version.

Wings2000 Pro, FACT, Tally, and EX Next Generation, all fall in the small-to-medium office segment. Apart from the regular features, they also incorporate other features that a mid-sized business would require. Features such as an excellent graphical user interface, MIS reporting facility and multi-user facility makes them complete financial accounting packages.

Security

We are all extremely cautious about who should know how much about our monetary transactions. For a businessman, it is extremely necessary to have total control over how he wants his accounts to be handled. Many financial accounting packages allow you to hide or completely disable certain features depending on who is using the package. You can create multiple users, and define rights regarding which features they can use.

Besides multi-user security, encryption is another way to keep your data safe. We gave higher scores to software that support data encryption and multiple users.

Simply Accounting, FACT, Arthalekha and Accounting21 provide intensive security features. However, they have an open database format, which means that files created are not saved in the encrypted format. Tally was the only one that provided encryption support.

EX, which uses the MS Access database, provides almost no security for the database, but it has multi-user security wherein certain features can be disabled for a particular user. Tally, FACT, Wings2000 Pro, Simply Accounting and Account21 also provided multi-user accounting features, whereas DOS-based programs like ACE and Easy Accounting only provided the usual single-user password facility.

Help and Documentation

Help and documentation comes in various forms and media—from manuals to PDF and HTML files. The aim of help files and documentation is to get the user to learn and gain expertise of the software in the shortest time possible.

Tally EIS 5.4 has a really interesting manual. The manual has a lot of screenshots of the screens that you would come across while working on Tally.

It is well-categorised with the tasks arranged in appropriate groupings. There are sets of instructions on how to do particular tasks. The quality and quantity of help given allows a new user to do exactly what he needs by just

Curb Piracy! Go for Free Software

One key factor that most people tend to ignore is to install an original licensed copy of the software. It is a misconception that is propagated by local vendors who blatantly say, "Tell us which software you want, we'll install it for you."

All software has to be purchased and nothing comes free of charge. Even the most popular of all operating system software—MS Windows—has to be bought.

Pirated software is a major reason for the malfunctioning of the software, leading it to crash frequently, and it is you who have to suffer in the end. So installing a cheap and pirated version of the software is not exactly the right move if you want to have a trouble-free and stable working experience. Moreover, many companies provide free updates, excellent after-sales services and lumpsum discounts on forthcoming products to bonafide registered customers. And then there's the small matter of piracy being illegal. Does it still sound like a waste of money to buy original software?

If you would still rather not spend the money, you can go in for free accounting packages such as Wings. A professional version of the package is also available, which you can purchase if you are satisfied with its working and require advanced user options. Many open source packages are also available. Accounting applications come built into Linux and its other variants.

Selecting the Package

Selecting accounting software is indeed a tough job. With so many new features being added in every upgraded version, it tends to be a bit confusing to figure out which accounting software would be the most appropriate for you.

A home user should generally be looking for taxation, banking capabilities, etc, whereas a small-time businessman should be looking not only for these features, but also for product costing, inventory control, MIS, etc.

So you should understand your current requirements and identify your future needs, because it's not just about the money you spend to buy these packages. There is an enormous amount of work that goes into entering the data, which is worth more than the cost of the software. If something goes wrong with the data, or the year-end reports don't get done the way they're supposed to be, the situation at work could become really messy.

Here are some of the things to keep in mind before buying accounting software:

The install size should not be too large or heavy on the system.

- There should be adequate help and documentation, so novice users don't feel lost.
- The interface should be simple and configurable. Also make sure that it is a single entry package—no double entry should be required to update reports.
- Check for tiny but important details such as whether document numbering and date range are set up automatically or manually, whether there is support for an accounting period of more than a year, and whether you can back up not just on floppies but on other available media too.
- The package should have housekeeping and maintenance features.

looking through the list of tasks in the index.

DOS-based ACE has hardly any documentation on the software itself. However, a pretty detailed manual is included with it. The manual starts off by giving some tips to prevent you from getting into trouble. The installation procedure is also explained well.

Easy Computing's help comes in the form of a small manual, which explains the lengthy procedure of copying all the files and starting installation. The quality of the manual isn't too impressive—there's not even a clear index that you can refer to.

FACT's manual comes in the form of a Word document. There is a really well-designed index, but an HTML or PDF format document with links would have been a better option for browsing through the help document.

Wings2000 Pro's manual is probably the biggest amongst all the accounting packages. It has been created for all three versions of Wings—Wings2000 Plus, Wings2000 Pro and Wings2000 Net. Arthalekha, on the other hand, has a bare minimum of help provided, which is in the form of the Windows help format. Not much accounting terminology is explained; the emphasis is on shortcut keys.



Simply Accounting has a very nice on-screen help file that is well categorised. It also explains a lot of accountancy jargon. Compared to the other packages, it comes out tops with its comprehensive documentation and easy-to-use help.

Ease of use

Even after spending a lot of money on an accounting package, if you're uncomfortable using it, then it might end up lying on your computer without you ever doing any quality work on it. Hence the software needs to be user-friendly and have an inviting look and feel.

Most of the products have the standard international drop-down menu style that makes it convenient for first-time users, barring Tally and Simply Accounting, which have their own style of menus. By and large, the design and layout were also clear and easy to understand.

Simply Accounting is really a software for beginners. The software comes with a huge archive of templates for allowing users to get their work done by simply answering a set of questions. It stands apart with its Web-like feel and distinctive look.

On the other end of the spectrum are Tally, FACT and Wings2000 Pro, with advanced features and also a complex interface that a new user would definitely find difficult.

Account 21 has followed the generic menu appearance. The sub-menus have colourful icons depicting each entry type. This can be a little confusing initially, but once you get used to it, you should have no problems.

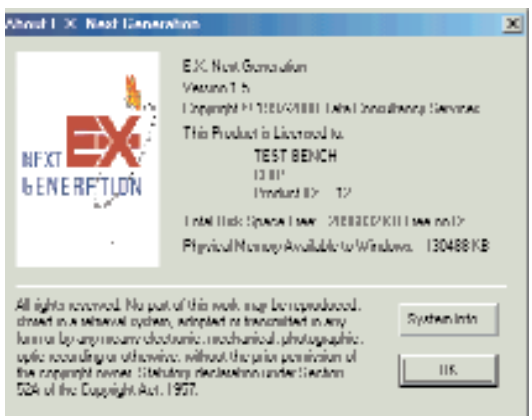
The DOS-based packages are straightforward and uncomplicated.

Other accounting software, such as Arthalekha and Wings 2000 Pro, provide multilingual support. Arthalekha even starts up with a Hindi interface and shows up your preferred language once you change the settings.

We also checked out whether it was easy to enter data into the program or whether it was a complicated procedure wherein one had to switch through numerous windows.

Simply Accounting leads here as well. With a neat interface and design, it saves you a lot of time and energy.

The data entry screen in Simply Accounting is also very well designed and there is even the option of customising its appearance by choosing from among the five skins available.



EX Next Generation: combines features with functionality

SCORE BOARD Specifications

Accounting Software: How They Fared

Details	Tally EIS 5.4	Simply Accounting	Account21	Wings2000	Easy Accounting	Arthalekha	ACE	FACT 1.9	Wings2000 PRO	EX Next Generation 1.5
Contact	Software at Work	Simply Soft Technologies	Topsys Solution P. Ltd.	Wings Infonet	Support Systems	Modular Infotech Ltd.	Coral Soff'wares	Vedika Software	Wings Infonet	Tata Consultancy Services
Price	Rs 22,000	Rs 5,992	Rs 12,950	Free	Rs 9,995	Rs.5,000	Rs 9,500	Rs 14,500	Rs 18,000	Rs 9,500
Phone	022-6437209	080-2384900	080-5274343	040-3211458	011-5745596	020-4223510	033-2375091	022-5006490	040-3211458	022-8774081
Fax	022-6432275	080-2384905	080-5295046	040-3237318	011-5350473	020-4225896	033-2373298	033-2400824	040-3237318	022-8777441
Email	info@software-at-work.com	enquiry@simplysofttech.com	topsys@vsnl.com	info@wings2000.com	easy@satyam.net.in	modular@giasp n01.vsnl.net.in	info@coralindia.com	info@vedika.com	info@wings2000.com	jaideep_mudholkar@mumbai.tcs.co.in
Website	www.software-at-work.com	www.simplysofttech.com/		www.wings2000.com		www.arthalekha.com	www.coralindia.com	www.vedika.com	www.wings2000.com	www.tcs.com
Rating	B	B+	B	A-	B-	B+	B	B+	B+	B+

Managing Personal Finances

What if you are not comfortable with all the accounting terms? What you need is a personal accounting software that takes care of things such as your daily savings and budgets, keeps track of the balances in your bank accounts, manages you stocks portfolio and even helps you with a bit of tax-planning if necessary.

Two such software that do all of this quite well and are also popular are Quicken 2001 and Microsoft Money. With their year 2001 versions, they even have many sophisticated features. Unfortunately, both these products are customised more towards the Western market, and hence many of the options and features these software use (currency, for example), may not exactly be to your liking. Features that you might want to use are the bill reminder facility and the cash-flow balance statement that Quicken and Money provide.

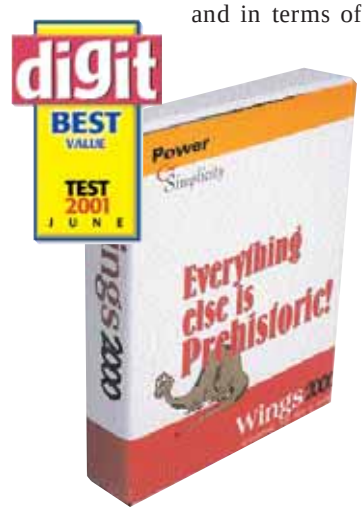
CONCLUSION

So which one is the best? While all these software provide utility, some of them lack certain features while some surpass the others in terms of implementation and ease of use. Of course, like we said earlier, it depends on what your needs are.



From our analysis, we conclude that **Wings2000** gives you the best value—it's free and it fulfils the common home user's needs. While no help or tutorials are provided with the basic software, these can be bought separately in the form of a book for a small sum. Home or office users who don't need high-end features will be more than satisfied with Simply Accounting, which boasts of a splendid feature-list at an extremely reasonable price.

On the small-and-medium business front, Account21, Tally, FACT, Wings Pro, Ex Next Generation were all very useful, and in terms of features and functionality, they were neck-and-neck. Among them, FACT is the most feature-rich—it gives users complete inventory control and also provides very robust reporting capabilities with highly defined and complex levels and rules. The others lost out because they lacked in totality of features and supported less accounting tasks as compared to FACT.



So **FACT** emerges the winner with very advanced features, and that too at a reasonable price. When it comes to taking care of all that expenditure and going that extra step to create reports, manage balance sheets and even plan your tax structure, opting for an accounting package like FACT is probably the best step that you can take to bring sanity to your financial management.

Decision Maker

Home users	Basic needs	Wings2000
	Advanced needs	Simply Accounting
Office users	Performance	FACT 1.9
	Price	EX Next Generation

Imaging: Ram



...to the 'real' side of the virtual world. DirectX8 and GeForce3 are getting together to give you a gaming experience you won't forget in a hurry

MARCO D'SOUZA

You get thrilled by the spectacular lens flare effects picked up off chrome bumpers in today's trailblazing games, but you crave for more.

When the Porsche 911 GT3 blasts off at the starting line, you want to see that cloud of smoke rise from the spinning wheels. You want to see the expression on your opponent's face when he's about to get 'fragged'. You want to feel like you're really there.

Well, the marriage of next-generation graphics APIs and 3D accelerator cards promises to put you splat in the middle of all the action in ways you never thought possible.

More than ever before, manufacturers of 3D graphics processors are getting together with creators of the software that drives these cards and creating advanced products that enhance your gaming experience.

Two such products are nVidia's latest 3D graphics processor, GeForce3, and the newest version of graphics API DirectX. So what makes DirectX 8.0 tick? And what makes GeForce3 so special? Here's an insight into the two technologies and how they tie up to usher in the next generation of 3D graphics.

What Makes DirectX Tick?

DirectDraw: Allows direct access to areas in the display adapter's video memory and hardware buffers for tasks such as page flipping (used while creating animations to display one screen while the next is being created). Allows programs to make full use of the colour decompression capabilities of various types of hardware and not be dependent on a specific type of hardware.

Direct3D: Allows access to the advanced features that handle 3D functions such as triangle creation, scaling and transforming 3D images. This component is scalable, allowing part or all of the 3D rendering pipeline access to more advanced features such as z-buffering and anti-aliasing.

Direct Input: Implements support for analog and digital input devices, offering increased responsiveness and sensitivity.

DirectSound: Offers direct access to the audio sub-system. Enables features such as low-latency mixing (where multiple audio sources are used with the soundcard) and hardware acceleration for high sampling rates when many audio streams are used, like in the new breed of games that have surround-sound.

DirectPlay: The networking component, which provides access to devices over a network—independent of the hardware, protocols and networking services that are used.

DirectMusic: Part of the direct sound sub-system that streamlines the reproduction of music such as MIDI playback in applications and games that are written to use it.

GEFORCE3

Graphics hardware has really matured over the past couple of years. The performance capabilities of today's 3D accelerators let game developers truly display their artistic skills. The emphasis undoubtedly is on realism. You want to be able to see the ripples on that stream when you're walking through the fantasyland of your favourite role-playing game, and manufacturers such as nVidia have been consistently churning out the hottest gaming hardware to bring these effects to life.

nVidia products usually score both in terms of sheer performance and their use of innovative technologies. So does the GeForce3 carry on the tradition, or is it just another graphics card churned out from the assembly lines with the mandatory increase in specifications? Let's take a look at some of its features and then decide.

The nfiniteFX engine

One of the major enhancements in GeForce3's technology is the ability to allow game developers to specifically program certain parts of this graphics processor, allowing it to deliver custom special effects. These technologies are collectively referred to by nVidia as the nfiniteFX engine. Two important components of this new architecture are the Programmable Vertex Shader and the Programmable Pixel Shader.

Programmable Vertex Shader: In any 3D model, the vertex is the most basic element. This is the point at which the polygons in a 3D model meet, so any changes in the position and other characteristics of a vertex can change the appearance of the 3D model. Until now, vertices could be assigned to perform a very limited number of operations in the 3D application. However, with the GeForce3 there are a number of custom special effects, such as morphing, animation, deformation and environmental effects, which can be applied to vertices. This gives programmers a high amount of flexibility in what can be done to the 3D objects in the game.



The Programmable Vertex Shader will allow you to see wrinkles on faces in real-time



The Programmable Pixel Shader will let you see combined effects like reflective bump mapping

Effects such as fog, lens effects and water refraction are now possible. Also, effects such as wrinkles and stretch marks can be created on the faces of characters in games, objects can morph into other elements, and mechanical processes such as gear trains can be simulated accurately. This will mean more natural animations for next-generation game characters.

Programmable Pixel Shader: Like the Programmable Vertex Shader, this feature allows application developers to take one step further towards creating life-like 3D scenes and effects. This technology has been around since the GeForce2 was launched. It was then known as the nVidia Shading Rasteriser or NSR. Using it, effects such as reflections, bumps, fog and textures could be applied at the pixel-level in a scene. The GeForce3 processor takes this to a much higher level by allowing up to eight texture operations in a single pass. This is coupled with the ability to handle four textures at a time. The GeForce3 can combine these operations to produce breathtaking special effects such as reflective bump mapping and realistic textures with environmental effects such as fog and mist. Since these effects are processed in parallel, it does not affect the frame rates in games, but it certainly makes games look a whole lot better!

Lightspeed Memory Architecture

nVidia graphics cards have always been notorious for problems with their memory bandwidth. As 3D processors keep getting faster, even though exotic memory like DDR is used, performance is hit at higher resolutions because of the graphics card's memory architecture.

The XBox... a Taste of Things to Come

The first time the GeForce3 made its appearance was not on a graphics card. Instead, it made its debut in Microsoft's gaming console—the XBox. Boasting of steroidal specifications, this gaming console promised gameplay like nothing before it. At that time, the GeForce3 was code-named NV20 and it was one of the most powerful graphics sub-systems available for 3D computer graphics.

Specifications of the XBox	
CPU	733 MHz
Graphics processor (NV20)	250 MHz core
Total memory	64 MB
Memory bandwidth	6.4 GBps
Polygon performance	125 million polygons/sec
Pixel fill rate	4.0 Gigapixels/sec
Storage sub-system	5X DVD, 8 GB HDD



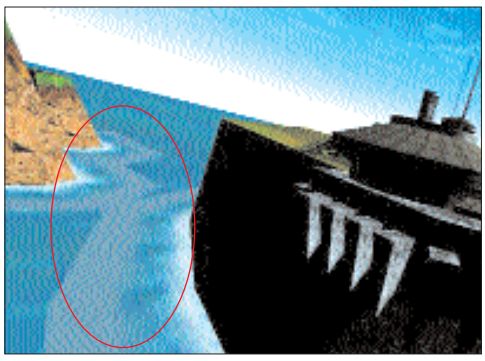
Gear up for the next generation of gaming with Microsoft's XBox

Until now, the easiest way to counter this problem was to add more memory and pump up the memory's frequency. However, with the GeForce2 Ultra's memory clocking at 460 MHz with bandwidths of up to 7.3 GBps, something else had to be done to alleviate the memory bottleneck. So the GeForce3 uses a couple of innovative approaches to access and use its onboard memory.

Splines: In the past, graphics applications used to send raw triangle data to the graphics card, which in turn would process this data and churn it out into displayable graphics. Nowadays, the complexity of the 3D elements in games reaches high levels and there are times when individual 3D elements are often composed of hundreds of thousands of polygons!

So instead of relying on raw triangle data to define complex 3D surfaces, they are now defined by a number of control points, also known as splines. This results in a significantly lower load on the memory bandwidth and greater efficiency is obtained, especially when working with complex 3D elements.





A scene without antialiasing (above) and with it (below). Notice the reduction in jaggies

Crossbar memory controller: Another enhancement to the memory architecture is the crossbar memory controller. The GeForce3 uses four memory controllers that interact with each other and the GPU. Therefore, smaller chunks of information can be accessed and processed from many parts of the memory simultaneously.

HRAA (High Resolution Anti-Aliasing)

This is another feature that was incorporated to a lesser extent into the GeForce2 as well. Aliasing is the appearance of undesirable jagged edges in a 3D model when there are not enough pixels to represent it. The GeForce3 uses a process called Quincunx Sampling to minimise these 'jaggies' by interpolating pixels between the jagged edges. It does so by internally increasing the resolution of the game and then scaling it down to the required resolution. This feature is hardwired into the GeForce3; enabling HRAA to make edges and lines in 3D games appear smooth.

Lossless Z-compression

One of the most important components of the 3D processor is the Z-buffer. This is the area where the 3D processor stores depth information about a scene. The graphics processor uses this information to know which 3D objects lie in the foreground and which are in the background. Since this information is extensive in typical 3D games, it takes up a lot of memory bandwidth. To optimise the memory bandwidth, GeForce3 implements a form of lossless compression of this Z-buffer data and therefore allows the memory to be used more efficiently.

Z-Occlusion Culling

When a 3D object is hidden by another object in the foreground, there is in fact no need to draw that hidden part because it won't be visible to the viewer. If this approach is used, the information needed for drawing this object does not have to passed to the graphics processor. The GeForce3 uses this technique of only processing graphical information that will eventually be drawn in the scene. This results in a significant increase in the efficiency of the graphics processor's throughput.

The Games to Look Out for!

Everglade Rush: This futuristic hovercraft racing simu-



lation taps the power of the GeForce3 and coupled with the new features in DirectX 8.0, it features very impressive textures and lighting effects as seen in its pre-release images.

Dronez: This is an RPG that is set in a 3D world and it features some very impres-



sive and breathtaking effects in terms of the complexity and the animations of the 3D models used.

Independence War 2: This space war takes detail to an altogether higher level



where the models boast of polygon counts that near a hundred thousand! These, along with some very impressive lighting and particle effects such as gunfire and explosions, are brought to life with the GeForce3 and DirectX 8.

DIRECTX 8.0

Firstly, what is DirectX? DirectX is an Applications Programming Interface or API. This software is incorporated into Microsoft's operating system and it provides a bridge over which applications and games can access the various features that are supported by multimedia hardware such as 3D accelerators, soundcards, input devices such as joysticks, etc. If a particular 3D graphics card can support a plethora of radically new features, it would amount to nothing if the API does not support these functions.

The primary aim of DirectX was to create a set of tools and interfaces that provides programmers with the building blocks necessary for developing applications that run independent of the hardware upon which these programs are run. This allows developers to concentrate more effort on the features of the application without bothering about hardware issues.

Prior to DirectX, software creators had to develop products to work well on a variety of hardware configurations and there was no real standard for doing this. DirectX provides what is called a Hardware Abstraction Layer (also known as the HAL), which makes use of software drivers to communicate with the application and the hardware.

So if software developers write a code to work with DirectX, they don't need to worry about which hardware platforms it can run on, as all hardware that supports DirectX will run the software.

DirectX provides control to a set of tools that control low-level functions such as 2D graphics acceleration, sound generation mixing and reproduction, and support for input devices such as the mouse and joystick.

All these low-level functions are supported by various components that together make up the foundation of DirectX: Microsoft DirectDraw, Microsoft Direct3D, Microsoft DirectInput, Microsoft DirectSound, Microsoft DirectPlay and Microsoft DirectMusic.

So what's new in DirectX 8.0?

At first glance, you'll find that the new features supported here are strikingly similar to those that have been implemented in the GeForce3. In fact, nVidia has licensed many of its technologies to Microsoft for the development of DirectX 8.0. Little wonder that as of now, GeForce3 is the only graphics processor that is fully DirectX 8.0 compliant. Let's take a look at what new features have been added to DirectX 8.0.

Programmable Vertex Shaders: This feature will allow programmable control over the transform and lighting portion of the graphics processor. Using this, game developers will be able to simulate far more realistic effects when dealing with objects in skin and cloth and the deformations that are associated with it. Using this feature, developers will be able to impart a different 'feel' to each of their games by making the 3D objects in each behave and react differently.

Programmable Pixel Shaders: Tying in with the feature that is implemented in the Pixel Shader used in cards such as the GeForce3, game developers will now be able to create combined effects such as bump maps with reflections and textures. This would make effects such as water ripples and corrugated metallic surfaces more realistic than ever.

Multi-sample Rendering: In this feature, multiple instances of a 3D scene can be rendered in different frame buffers and are then displayed in the manner desired by the application creator. This would allow for effects such as anti-aliasing, motion blur, depth of field, soft shadows, etc.

Volumetric Textures: This feature ties in with the Programmable Pixel Shader feature. Here, textures will be assigned one more dimension, giving that extra sense of realism.

N-Patches: This allows the complexity of a model to be increased to greater levels. It does this by using special curves called Bezier curves to increase the smoothness in the curved areas of the 3D model. N-Patches could allow a relatively simple model to appear much more detailed.

Texture compression: Textures are one of the biggest elements used in 3D scenes, and they are often the cause of the bottlenecks associated with the graphics card's memory. DirectX 8.0 has incorporated support for texture compression. Compressing all those large texture files will increase the efficiency of the memory bandwidth, resulting in very significant increases in performance and greater visual quality.

Matrix Palette Skinning: Much like vertex skinning, MPS is a feature that allows far more realism in transforming objects that are skinned with textures. Used to generate effects such as wrinkles in cloth or skin, this method provides greater fluidity than vertex skinning as there are more control points used here.

The verdict?

The GeForce3 coupled with DirectX 8.0 promises games that are going to greatly blur the dividing line between games and movies. It looks like the catchword for the next generation of graphics accelerators is not just pure frame rates, but also realism. So the next time you gun the 500 bhp engine in that Lamborhgini racing simulation, the visual quality of the game and its special effects might be so intense that you might actually smell the burning rubber!

HARDWARE

Radar

A PC from Dell, a 17-inch monitor, motherboards, a CD-writer and a hard disk drive among other hardware devices

Find it on digit interactive

More Info on the hardware products tested. Check out **Mindware**

Acer CD-RW 1208A

It's all write

This internal CD-writer from Acer is built on Acer's Seamless Link Technology, which ensures that there is no buffer under-run. The burn process failed for one CD because the drive was slightly jerked during the burning process. It has a Play/Skip button for playing conventional audio CDs.



SPECIFICATIONS:
Interface: IDE
Features: 12x write, 8x rewrite, 32x read speed; 4 MB buffer
Benchmarks: SiSoft Sandra: 1161 kbps sequential read, 359 kbps random read, 170 ms average access time; 1346 in CD WinBench 99; 7 minutes 5 seconds to write 650 MB of data at 12x

verdict	B +
Acer CD-RW 1208A	
Performance	
Build Quality	
Value for Money	
Features	
OVERALL	

\+ 4 MB in-built buffer
\- Not stable
Price: Rs 13,500
Contact: Acer Peripherals
Phone: 022-5705230
Fax: 022-570535
E-mail: pankajpamani@acercm.com.tw
Web site: www.acer.com

ViewSonic E70F

For your eyes only

This is a Full Flat Square Tube 17-inch monitor with a 16-inch effective diagonal viewable area and a 0.25 mm diagonal pitch. It is not capable of higher resolutions at higher refresh rates, making it unsuitable for working with graphics. The display is feature-packed with a wide variety of image, colour and geometry controls.



SPECIFICATIONS:
Interface: 15-pin D-Sub
Features: Max resolution 1280x1024 pixels at 60 Hz; anti-static, anti-reflection screen coating; CD with drivers and screensavers
Benchmarks: Anomalies along upper right edge of screen in the screen geometry tests. Slightly blurred raster along lower left and right edges of screen while displaying convergence test pattern.

verdict	A -
ViewSonic E70F	
Performance	
Build Quality	
Value for Money	
Features	
OVERALL	

\+ Highly configurable OSD
\- Audible clicking sound when changing from normal to text mode
Price: Rs 14,500
Contact: Roop Electronics
Phone: 022-6631921 Fax: 022-6103919
E-mail: sales@rooponline.com
Web site: www.viewsonic.com

Maxtor DiamondMax VL 40 Hard Disk

Power with speed

The DiamondMax VL series of hard drives from Maxtor comes in capacities of 10.2 GB to 40.9 GB. The one we tested was a 20.4 GB hard drive. In spite of the fact that this is a 5400-rpm drive, it delivered impressive performance in all the tests. Its aggressive pricing makes this drive suitable for home users.



SPECIFICATIONS:
Interface: IDE
Features: 5400 rpm rotational speed, 2 MB SDRAM cache buffer buffer with an Ultra ATA/100 compatible interface
Benchmarks: SiSoft Sandra: 28 MBps sequential read, 5 MBps random read, 10 ms average access time 15500 in High End Disk WinMark 99; 5190 in Business Disk WinMark 99

verdict	A -
Maxtor DiamondMax VL 40 Hard Disk	
Performance	
Build Quality	
Value for Money	
Features	
OVERALL	

\+ High data transfer speeds
\- No details of jumper settings on the hard drive
Price: Rs 4,800
Contact: Karma Distribution
Phone: 9810437872 Fax: 011-6420452
E-mail: naresh@karmasg.com
Web site: www.esysdistribution.com

Ticket to the movies

Instead of a tray, this drive features a slot-in mechanism that can be easily used in the horizontal or vertical positions. Its digital servo mechanism, CAV technology and Dynamic Damping System (DDS) helps it withstand vibration and also helps minimise errors by improving stability and accuracy of the data read.

AOpen 1640 PRO DVD-ROM



SPECIFICATIONS:
Interface: IDE
Features: 16x DVD/40x CD-ROM drive; slot-in-mechanism; supports CD formats like CD/DVD, CD-R/RW, DVD-R/RW; incorporates DDS, an internal buffer of 512 KB, bundles PowerDVD 2.55
Benchmarks: SiSoft Sandra: 3235 sequential read, 865 random read, 102 ms average access time; 1900 in CD WinBench 99

verdict	A -
AOpen 1640 PRO DVD-ROM	
Performance	
Build Quality	
Value for Money	
Features	
OVERALL	

\+ Slot-in mechanism
\- Does not support DMA
Price: Rs 5,950
Contact: Yogi Comp
Phone: 022-8806582
Fax: 022-8806582
E-mail: shailz@yogicomp.com
Web site: www.yogicomp.com

A good bargain

A low-budget motherboard that also delivers quality performance. Supports both Slot1 or Socket 370 based processors, which makes it useful for upgrading your processor in the future. Its dual-inline memory module banks support up to 256 MB of memory. This is a disadvantage as there is no space for further upgradations.

Kranion KP2A693A Motherboard



SPECIFICATIONS:
Socket Type: Slot1 or Socket 370
Chipset: VIA693A
Features: Five PCI slots, one ISA slot, one AGP 4x slot and one AMR slot; support for both Slot1 or Socket 370 based processors
Benchmarks: 1480 in 3D Mark2001, 21.8 in Content Creation

verdict	B +
KRANION KP2A693A MOTHERBOARD	
Performance	
Build Quality	
Value for Money	
Features	
OVERALL	

\+ Dual socket motherboard
\- Only two memory banks for DIMM
Price: Rs 3,000
Contact: Cerebra Integrated Technologies
Phone: 080-3474934 Fax: 080-3755492
E-mail: cerebra.smt@cerebracomputers.com

Anything but dull

A new entrant in the Indian market, this brand has some very striking features and specifications. It excels in graphics and audio applications, which puts it in the serious gamer's sights. The company has a toll-free number for ordering any Dell product and also for solving after-sales problems.

Dell Dimension 4100



SPECIFICATIONS:
Features: 1 GHz P-III, 128 MB RAM, 20 GB HDD, nVidia GeForce2 GTS w/32 MB videocard, Intel i815 motherboard, Creative SoundBlaster Live! soundcard, Harman/Kardon speaker system
Benchmarks: 33.5 in Business Winstone 99, 29.3 in ZD Content Creation, 6579 in 3DMark 2000, 122.8 fps in *Quake III*

verdict	A -
Dell Dimension 4100	
Performance	
Build Quality	
Value for Money	
Features	
OVERALL	

\+ Fault indicators on the motherboard
\+ Machine can be customised according to your need
Price: Rs 81,999 (configuration specific, local taxes extra)
Contact: Dell Computers
Phone: 1600338044 (toll free)
Web site: www.dell.com

Steady and stable

This board proved to be very stable during the tests. It has a highly identifiable gold-plated heat sink installed over the north bridge. The motherboard also features the capability of varying the bus speed and the processor core voltage in steps, which makes it easier to overclock.

A Open AX3S Pro Motherboard



SPECIFICATIONS:
Inteli815 chipset, 133 MHz bus speed
Socket Type: Socket 370
Features: Bundles with two software CDs, including the drivers for the main board and Norton Antivirus 6.0
Benchmarks: 2336 in 3DMark 2001; 125.9 fps in *Quake III* (normal mode) and 94 fps (high quality); crunched through all 21 filters in 116 seconds in the Photoshop test

verdict	A -
A Open AX3S Pro Motherboard	
Performance	
Build Quality	
Value for Money	
Features	
OVERALL	

\+ Good facilities for over-clocking
\+ Good package with detailed manuals
Price: Rs 7,000
Contact: Yogi Comp
Phone: 022-8806582
Fax: 022-8806582
E-mail: shailz@yogicomp.com
Web site: www.yogicomp.com

SOFTWARE

Radar

The latest software in the market for editing photos, logging PC activity, encryption and more

Find it on digit interactive

More Info on the software products tested. Check out **Mindware**

Digital Grafia

Photo Finish

A very basic photo editing software, but a bit confusing for the beginner. It has some easy-to-use filter effects. It allows you to save images in PSD format also, but you can work with layers in the drawing mode and not in the paint mode. Lacks the power to be used for industrial strength photo-editing.



SPECIFICATIONS:
Install size: 6.53 MB
Features: provides layers in drawing mode; filters and masking facility in paint mode

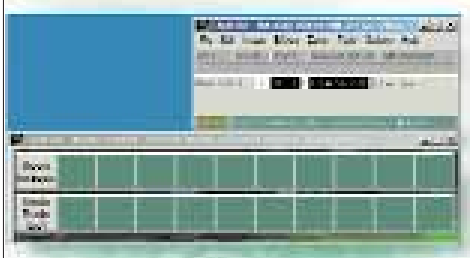
verdict	B -
DIGITAL GRAFIA	
Ease of use	
Features	
Performance	
Value for money	
OVERALL	

\+ Feature-rich
\+ Only 6.53 MB installation
\- Confusing to use
Price: Rs 21,000
Contact: New Oriental Imaging Pvt Ltd
Phone: 022-768 0551 Fax: 022-7631088
E-mail: oclcom@bom5.vsnl.net.in
Web site: www.orientalimaging.com

Easy Peg

In the Frame

Supports viewing of JPEGs, bitmaps and PNG formats and also has some good effects to enhance your photographs. It supports viewing of AVI and MPEG videos and you can also extract frames from them. It has an impressive colour palette and you can increase or decrease any of the red, green or blue channels.



SPECIFICATIONS:
Download size: 1.63 MB
Features: Supports viewing of JPEG, bitmap, PNG, Avi and MPEG files; features include thumbnail creator, screen capture

verdict	B -
EASY PEG	
Ease of use	
Features	
Performance	
Value for money	
OVERALL	

\+ Easy to use
\+ Small download size
\+ Feature-rich
\- Videos can only be viewed in 200x 200 window size
Price: Freeware
Web site: www. Hnm-freeware.com

PC Activity Pro

PC Longer

A general purpose, easy-to-use software that runs in the background and lets you monitor the programs that you run. An irritating thing about this software is that you need to reboot every time you change its settings. Overall, a very expensive package that is not worth investing so much money.



SPECIFICATIONS:
Features: Logs all your activities such as start-up, shutdown time; encrypts your log files; maintains record of sites visited

verdict	B -
PC ACTIVITY PRO	
Ease of use	
Features	
Performance	
Value for money	
OVERALL	

\+ Records all your PC activities
\+ Not resource hungry
\- Requires a reboot on change of settings
\- Extremely expensive
Price: Shareware, $149.95 registration fee (approximately Rs 6,898)
Web site: www.softsecurity.com

Safety First

It can encrypt almost any type of file on any type of media, be it Zip disks or tape drives. You could e-mail the encrypted file in a self-extracting file format to anyone irrespective of whether they have Secure IT 2000; all that the person requires is the right key and that his machine should be running on a Windows platform.

Secure IT 2000



SPECIFICATIONS:
Features: 448-bit encryption algorithm, built-in file shredder

verdict	A -
Secure IT 2000	
Ease of use	
Features	
Performance	
Value for Money	
OVERALL	

\+ Extremely high encryption algorithm level (448 bit)
\+ Very easy to use
Price: Rs 3,250
Contact: Secure Soft India
Phone: 022-4452393 Fax: 022-4453371
E-mail: info@secure-soft.com
Web site: www.secure-soft.com

Paper Saver

Print one, two, four and up to eight pages in a single page with this software. Its configuration is like that of your printer driver. You can save your printing job, so you can print later without bothering to locate the documents. You can manually print on both sides of the paper if your printer does not support dual-sided page printing.

Fine Print 2000



SPECIFICATIONS:
OS support: Win98/ME/NT/2000
Installation size: 1.66 MB

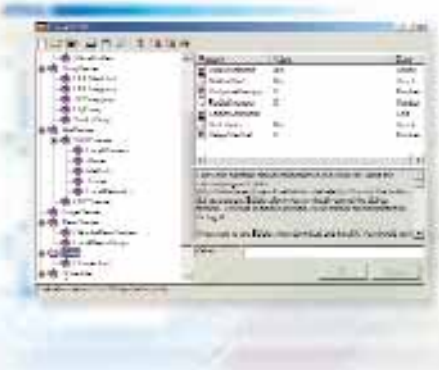
verdict	A -
Fine Print 2000	
Ease of use	
Features	
Performance	
Value for Money	
OVERALL	

\+ Saves paper and ink
\+ Can save your printing job
\+ Lets you print on both sides of paper
\- Expensive
Price: Shareware, $39.95 (approximately Rs 1,838)
Web site: www.fineprint.coms

Server Choice

It allows you to configure your machine as a Web, proxy, mail, news or ftp server. After the installation process, the default address is the name of the machine itself, and you can access the features through a Web interface. On the client or node machine, the software allows you to share mailboxes and also messenger services.

E-Serv



SPECIFICATIONS:
Features: Options to configure your machine as a Web, proxy, mail, news or ftp server; the proxy server allows both http or ftp connections

verdict	B +
E-Serv	
Ease of use	
Features	
Performance	
Value for Money	
OVERALL	

\+ Feature-rich software
\- Difficult to use for a beginner
Price: Rs 4,500 (12-user), Rs 5,500 (25-user)
Contact: True Software Solutions
Phone: 011-5535158
E-mail: info@truesoft.net
Web site: www.truesoft.org

Child-safe Web

If you want to screen out certain Web sites from your Net-savvy kids, this may be a good tool to use. But Krowser uses predefined criteria, so it is not completely foolproof. Once installed, it automatically disables the default browser and you have to use this as the default browser. It is protected by an administrative password.

Krowser



SPECIFICATIONS:
Features: A database of about 4,000 Web sites has been reviewed for their content

verdict	B +
Krowser	
Ease of use	
Features	
Performance	
Value for Money	
OVERALL	

\+ Very small download size
\- Doesn't protect you from all objectionable Web sites
Price: Freeware
Contact: Pitara Kids network
Phone: 022-6389755
E-mail: khanna@pitara.com
Web site: www.pitara.com

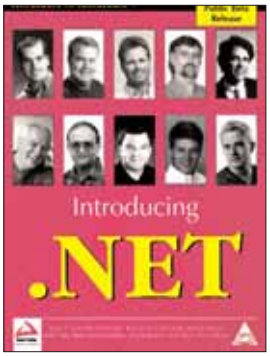
Reviews

Find it on digit interactive

Arena

For game reviews check out,
Mindware

Introducing .Net

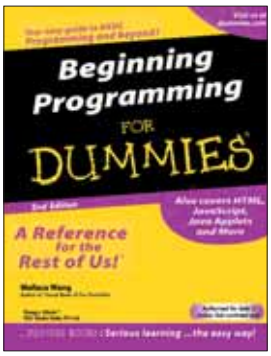


Publisher: Shroff Publishers & Distributors
Contact: Computer Bookshop
Phone: 022-2070989
Fax: 011-3259790
E-mail: cbsbom@giasbm01.vsnl.net.in
Price: Rs 300
Rating: ▲▲▲▲△

Dotty about .Net

The name says it all. It is targeted more towards professional programmers and developers and calls for a higher level of expertise and knowledge of technologies such as COM, COM+, ASP and VB. It is geared towards telling you what .Net is all about and what it can do for you. It includes chapters on topics such as .Net overview, what's new in Visual Basic.NE and so on.

Beginning Programming for Dummies

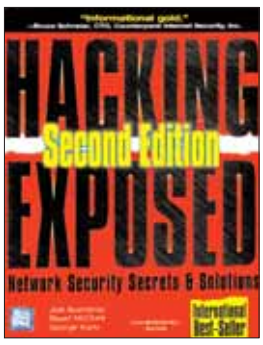


Contact: IDG Books
Phone: 011-3260877
Fax: 011-3259790
E-mail: idgbooks@vsnl.com
Price: Rs 199
Rating: ▲▲▲△△

Syntax errors

This book takes a look at programming concepts in a simplistic and humorous manner. It teaches you to program a computer in the most convenient way possible and at the same time with a view to enjoying it. It is divided into seven parts and also provides you with information on a few programming careers. For an insight into programming at a beginner's level, you would probably want to start with this book.

Hacking Exposed: Network Security Secrets and Solutions



Publisher: Tata-McGraw-Hill
Contact: Computer Bookshop
Phone: 022-2070989
Fax: 011-3259790
E-mail: cbsbom@giasbm01.vsnl.net.in
Price: Rs 395
Rating: ▲▲▲▲△

Whack the hacker

Every IT company faces the danger of hacker attacks and protection from such possibilities is what this book looks at. It looks at the world of network security, its vulnerabilities and also how to protect yourself. You have different scenarios highlighted and other informative chapters on topics such as footprinting, hacking Win95/98 and Me, firewalls and more. A very handy book for system protection.

On the Stands

Laws relating to Information Technology



The book takes an in-depth look at the various legislative laws surrounding IT and covers such topics as legislation from foreign countries and also the latest developments on Taxation of Electronic Commerce.

Contact: Vikas Publishing
Phone: 040-4742324
E-mail: asialaw@satyam.net.in
Price: Rs 400

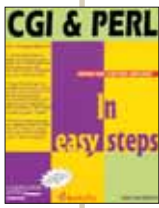
The Silicon Valley PC



Here, you are provided with information on various aspects of Information Technology starting from the very basics. It contains chapters on subjects such as Integrated circuit chips, computer motherboards and other IT-related issues.

Publisher: Equation Meridan
Contact: Computer Bookshop
Price: Rs 320

CGI & Perl in easy steps



This book is part of an 'In easy steps' series of computer books that provides you with easy-to-understand instructions on various computing and programming topics. This particular book looks at a step-by-step introduction on how to write Perl scripts.

Contact: IDB Books
Price: Rs 165

UNDERCOVER

Dial 'M' for...

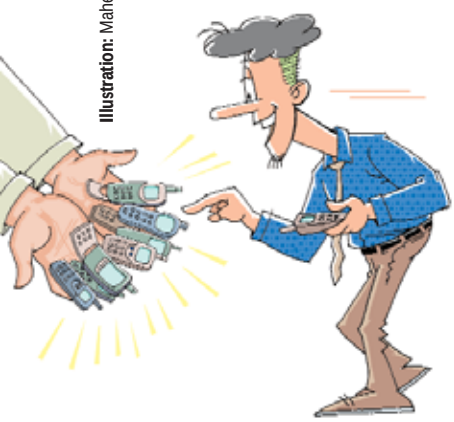


Illustration: Mahesh Benkar

They're getting sleeker all the time. And no undercover agent is complete without one. So Agent 001 decides to get himself one of the latest models

Austin Powers has one. Nathan Hunt flaunts a couple of sleek ones when he's off on his impossible missions. And James Bond has a new one every time I see him! So I decided it was high time I got myself one as well. A mobile phone, that is. Why, what did you think I was talking about?

Last month, I was on the prowl in some Mumbai suburbs, looking for the perfect little gadget to accompany me on my missions.

I found out pretty soon that Nokia phones are the hot favourites. One of the cheapest and coolest models is the Nokia 3310, known for its compact size and its price tag. This can be anywhere between Rs 7,500 and Rs 13,000, depending on where you buy it. An authorised dealer in Colaba, Mumbai, offered it to me for Rs 11,500. Another vendor promised me, "*Woh-ich maal, bina dabba*, sevan five." (The same model, without the packaging, for Rs 7,500). When I asked for something similar but cheaper, I was told about the Nokia 3210. This doesn't have the vibration option that the 3310 has, so it costs between Rs 5,500-6,500.

This phone happened to be unavailable at most shops I asked at. Many vendors offered me a substitute. "*Arey*! Triumph *yaa* Alcatel *le lo*. *Sasta padega*." (Go for Triumph or Alcatel, they'll be cheaper.) Triumph is a mobile service provider, which also sells unbranded phones under its brand name. Alcatel is known in the market for its looks and features, especially in the latest models such as the Alcatel 701 series. I chanced upon some of these, but they were quite expensive.

Ericsson phones were pricey too, especially the ones I saw in some of the official shops in Andheri. I also saw some smashing Sony and Samsung phones. They were sleek. They were WAP-enabled. Their prices touched Rs 20,000 in the black market. Sigh!

I'd like to say two words about the black market before we go any further—*caveat emptor*. Nokia, Samsung and Ericsson appear to be the most popular trio in the black market, although you'll never hear it from those guys. They just try to sell you whatever they have. So you'll hear a lot of stuff like, this is the latest *maal* (he plans to overcharge you), that he has sold three of these since morning (slow-moving product, maybe defective), or that this is his last piece in stock (wants to dispose of old stock before arrival of a new model).

Another thing that is prevalent is the 'exchange phenomenon'. I kept bumping into people who were trying to exchange their old phones for newer ones. If the deal goes off well, the buyer gets some discount on the new phone he's buying, while the seller gets a phone he can resell as new to an unsuspecting victim.

"*Arey, naya maal hai yaar*!" (It's a new piece) shopkeepers would protest, as I suspiciously opened up the back panel of phones, trying to check whether it was old.

A word of advice: If you are tired of your old phone, you could jazz things up a bit by going in for skins and add-ons made by the company itself. These are available for most phones and cost between Rs 350-550.

One thing's for sure, vendors in the black market are not the best people to ask for recommendations. So do some research beforehand to figure out what type of phone you want, which features and options you require, and the price you're willing to pay. I finally bought the Nokia 3310, so that is one mission accomplished. Next target: a BMW like Agent 007's.

Do some research beforehand to figure out which features and options you require and the price you are willing to pay

What to Look Out for

Be careful about the following points while buying a cell phone:

- Check the cell phone for any damage. Try to see if any scratches are visible on the panel or on the screen of the handset.
- It is probable that you might end up buying a used mobile. The best place to check this is the inside of the mobile where the battery is placed. These parts are not easy to replace unlike the front panel or body, which are easily replaceable.
- Check the battery power. You might be sold a cell phone with inactive batteries or ones that are nearly dead.
- Try dialling through the phone and speaking into it to check for any reception problems.
- If possible, test the various features of the mobile to ensure that the piece is working perfectly.
- Choose a good mobile service provider that has an established setup in your area of residence or work. Also find out about all the schemes being offered by the service provider to pick the one that suits you best.

The final word: buy from authorised dealers. You will not only get a genuine product but also better and more reliable service.

Want to share insights with others on the things to look for when buying a cell phone? Write in to readersletters@jasubhai.com to share your experiences

A-List

A listing of the best products in different hardware and software categories

Find it on digit interactive

More Info on the top five products tested in each category. Check out **Mindware**

Who's in, who's out? The competition's hot, but only the winners get to this page—a listing of the best performing hardware and software that have been tested till date in different categories.

Every month, at the Digital Media Test & Research Centre, we carry out a series of comparison tests as well as individual product reviews. Based on these tests, the best products have been listed here (*detailed reviews on Digit Interactive-Mindware*). As different products get reviewed over the months, the top products might find themselves slipping out of the charts and replaced by the latest entrants in the market. So, keep your ears sharp and eyes open and keep yourself abreast of the latest cool products.

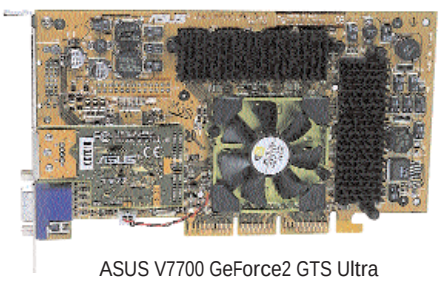
HARDWARE

Monitors (14- & 15-inch)
Sony CPD-E100
+ Good features and performance
– Not for professionals
Contact: Rashi Peripherals
Phone: 022-8260258
Fax: 022-8190766
Price: Rs 14,800

Monitors (17-inch)
ViewSonic PS775
+ Very good image quality
+ Support for high resolution
Contact: Roop Electronics
Phone: 022-6631521
Fax: 022-6103919
Price: Rs 24,000

Monitors(19- & 21-inch)
Sony CPD-G500
+ Truly flat 21-inch screen; support for nearly every type of image
Contact: Rashi Peripherals
Phone: 022-8260258
Fax: 022-8190766
Price: Rs 87,900

Graphics card
ASUS V7700 GeForce 2 GTS Ultra
+ Blazingly Fast; DDR memory
Contact: Mnemonic Systems
Phone: 022-8260258
Fax: 022-8190766
Price: Rs. 32,000



ASUS V7700 GeForce2 GTS Ultra

Speakers
Creative SoundWorks DTT3500
+ True Dolby Digital-compliant sound
Contact: Compuage Infocom
Phone: 022-4913986
Fax: 022-4919069
Price: Rs 31,000

Soundcards
SoundBlaster Live! Platinum 5.1
+ Dolby Digital AC-3 compliant
+ High quality sound processing
Contact: Compuage Infocom
Phone: 022-4913986
Fax: 022-4919069
Price: Rs 13,500

Motherboards
ASUS P4T
+ Fits into any ATX cabinet
+ Good feature list
Contact: Rashi Peripherals
Phone: 022-8260258
Fax: 022-8190766
Price: Rs 17,500

Processors
Pentium 4 - 1.4 GHz
+ Fastest processor available in India
Contact: Ockam Systems
Phone: 022-6234798
Fax: 022-6704503
Price: Rs 37,000 (kit including motherboard, 128 MB RDRAM and cabinet)

Hard disks (SCSI)
Seagate Cheetah 18XL - ST318404LW - 18GB
+ Blazingly fast
– Heats up quite a lot
Contact: ACI
Phone: 022-8595830
Fax: 022-8595831
Price: Rs 18,000



Seagate Cheetah 18XL-ST318404LW-18GB

Hard disks (IDE)
IBM Deskstar 75GXP DTLA-307075 - 75GB
+ 10,000 RPM; good data transfer
+ 1 MB buffer
Contact: Wales Technologies
Phone: 022-3828100
Fax: 022-3828200
Price: Rs 19,500

DVD drives
Aopen 1640 Pro DVD
+ 16x DVD speeds; 512 KB cache
+ Good build quality
– Does not support DMA
Contact: Yogi Comp
Phone: 022-8806582
Fax: 022-8806582
Price: Rs 5,950



CD drives
ASUS CD-S500
+ Good performance
– Slightly inferior build quality
Contact: Rashi Peripherals
Phone: 022-8260258
Fax: 022-8190766
Price: Rs 3,000

CD-RW drives
Plextor W1210TA
+ High write and rewrite speeds
+ 2 MB buffer
Contact: Zeta Technologies
Phone: 022-4102277
Fax: 022-4102277
Price: Rs 13,500



Epson Stylus Color 880

Inkjet Printers
Epson Stylus Color 880
+ Very quiet; good results
Contact: Epson India
Phone: 022-8257286
Fax: 022-8267287
Price: Rs 19,000

Laser Printers

Samsung ML-5200A

+ Good text printing with effortless USB connectivity
– Average print speeds
Contact: Samsung
Phone: 011-6932517
Fax: 011-6932607
Price: Rs 23,500

Scanners

Epson Perfection 1640SU



Epson Perfection 1640SU

+ Transparency unit included as standard accessory
+ Fast image scanning
– Too bulky (4.5 kgs)
Contact: Epson India
Phone: 080-5321266/70
Fax: 080-5581799
Price: Rs 22,500

PCs

Dell Dimension 4100



Dell Dimension 4100

+ Customisation possible
– Too compact for expansion
Contact: Dell Computers
Phone: 1600338044 Toll free
Fax: 1600338046 Toll free
Price: Rs 81,999

Laptops

Zenith 21A Corporate Notebook

+ Feature packed
+ Excellent performance
– A little bulky
Contact: Zenith Computers
Phone: 022-8377300
Fax: 022-8364859
Price: Rs 1,25,000

External Storage Devices

IOMEGA 2GB Jaz

+ Very good price per MB; hard-disk-class performance
Contact: Neoteric Infomatique
Phone: 022-4172600
Fax: 022-4163679
Price: Rs 18,000

Handhelds

HP Jornada 680E

+ Power 133 MHz processor
+ Colour screen
Contact: Hewlett-Packard
Phone: 011-6826000
Fax: 011-6826030
Price: Rs 39,000

MP3 players

Creative NOMAD Jukebox

+ Excellent sound quality; onboard audio processing; USB interface
– Has moving parts
Contact: Compuage Infocom
Phone: 022-4913986
Fax: 022-4919069
Price: Rs 32,000

Keyboards

ACER Ergo

+ Ergonomic design
Contact: Acer Peripherals
Phone: 022-5705230
Fax: 022-4705235
Price: Rs 4,000

Gaming peripherals

Microsoft SideWinder Force Feedback Pro

+ Highly customisable
Contact: Mnemonic Systems
Phone: 022-8010871
Fax: 022-8051761
Price: Rs 8,750

Pointing devices

Microsoft Intellimouse Eye

+ Very smooth; resilient to dirt
Contact: Microsoft Corporation
Phone: 022-2850193
Fax: 022-2850198
Price: Rs 3,600


Zenith 21A

SOFTWARE

Operating systems (Linux)

SuSE Linux 7.0

+ Simple to install; many bundled applications
Contact: G. T. Enterprises
Phone: 080-6606093
Fax: 080-6671407
Price: Rs 1,800

Operating systems (Windows)

Windows 2000 Professional

+ Very stable
– Heavy on system requirements
Contact: Integrated Business Solutions
Phone: 022-8214701
Fax: 022-8328240
Price: Rs 8,400

Page layout

Corel Ventura 8

+ Many bundled features and tools
Contact: Integrated Business Solutions
Phone: 022-8214701
Fax: 022-8328240
Price: Rs 35,000

Web authoring

Macromedia Dreamweaver 4

+ Extensive feature support
Contact: Integrated Business Solutions
Phone: 022-8214701
Fax: 022-8328240
Price: Rs 13,000

Antivirus

Norton Antivirus 2001

+ High detection rate
+ Good script blocking capability
– Resource hungry
Contact: N & N Systems
Phone: 022-3680512/17/18
Fax: 022-3680513
Price: Rs 1,600

Firewalls

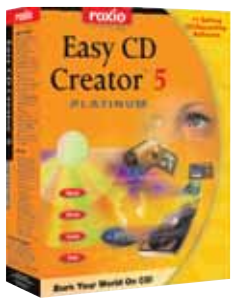


ZoneAlarm Pro 2.6

+ Good performance
– No protection against ActiveX controls
Contact: www.zonelabs.com
Price: Rs 2,000 (approx)

CD-burning software

Easy CD Creator 5 Platinum



Easy CD Creator

+ Very fast writing speed
Contact: www.roxio.com
Price: Rs 3,600 (approx)

Voice recognition

Dragon NaturallySpeaking v5.0 (Preferred Edition)


Dragon Naturally Speaking

+ Impressive speech recognition
– High on system requirements
Contact: HCL Infosystems
Phone: 011-4526518
Fax: 011-4526579
Price: Rs 17,995

Accounting Software

FACT 1.90

+ Exhaustive feature list
– No security for database
Contact: Vedika Software
Phone: 022-5006490
Fax: 033-2400824
Price: Rs 14,500

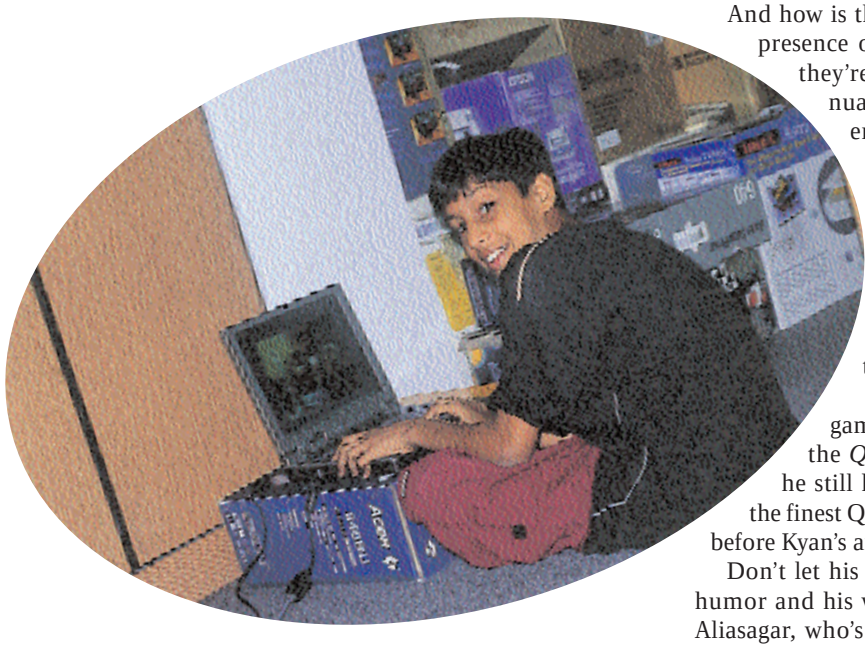


Gyaan with Kyan!

The Test Centre has a unique visitor this summer. He's here to learn, but he sure is teaching us a thing or two

If we were to pinpoint one factor that explains the enthusiasm and charged atmosphere that's the hallmark of this organisation, then it would probably be the fact that we have some of the youngest professionals, with an average age of about 22 years. And every once in a while, this age limit gets pushed a notch lower.

Meet Kyan. One of the newest arrivals at the Test Centre, this young man is probably one of the most qualified people around the office.



Kyan has been reading JDM magazines since the beginning and has always wanted to work with us. He has the distinction of having successfully completed his MCSE and an e-commerce course. He is fluent in Web programming languages such as Javascript, HTML, etc, and he's got his own Web site to prove that.

And when he's not arming himself with the latest computer fundamentals and programming languages, he's studying for his first board exams, coming up next year.

Oh! Did we mention that Kyan is just 14 years old?

Before you, like many legal eyes in the office, start accusing us of promoting child labour, let us make it clear that Kyan is here to spend his summer vacations, before he gets back to his books and his studies.

And how is the Test Centre reacting to the presence of someone so young? When they're not teaching him the finer nuances of benchmarking motherboards and graphics cards, they are playing pranks on him. Like carrying him about upside-down. In his turn, Kyan manages to get back at the Big Bad Boys by changing the settings on his opponents' computers when they're not around.

He gives the confirmed gamers a run for their money in the *Quake Arena*. The only person he still hasn't beaten is Rossi, one of the finest Quakers around the office—and before Kyan's arrival, the youngest at 19.

Don't let his size fool you for his sense of humor and his wit does in fact belie his age. Aliasagar, who's usually the quiet one in the Test Centre is driven to defending himself in one of the verbal battle of taunts that he regularly has with Kyan. With one of the sharpest minds around, this is one kid who's destined to go places, but for the time being, he's doing a good job of juggling his schoolwork with his other intellectual pursuits. No wonder, then, that he's sometimes called *Gyaan*!

Starring Live!

April saw a lot of activity at Jasubhai Digital Media. The reason: the third annual day celebrations with a day-long agenda of team presentations, entertainment and fun. Competition was severe as every team wanted to leave an impression. All the teams took time out from their hectic schedules to come up with ideas and rehearse for their presentations.

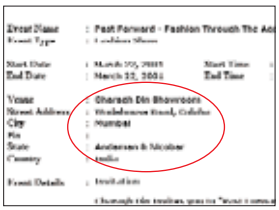
We were between the devil and the deep blue sea—caught between closing issue and preparing for the presentation! One day to go and we still couldn't find the time to prepare for it. Till we hit upon a simple idea. Why not do a live presentation of the issue-closing? What followed was a mad adventure. Someone russled up a Webcam and the night was spent in experimenting with it. In the process we recorded the antics of some unsuspecting victims in their dare-devilry before the camera.

By the morning, we had things sorted but sound was still a problem. So we hit upon another simple idea. While the rest of the team 'performed' in front of the camera, Karan, our assistant editor, filled in the audience three floors below with what was happening.

We had a blast doing the presentation, but the icing on the cake was that no one believed that it was actually being relayed live from another floor!

Confused state of mind!

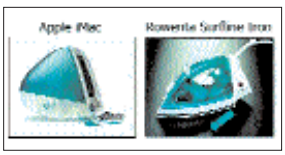
One of our readers received the strangest of



e-invites. While the event itself was pretty ordinary, what was extraordinary was the location. If you look closely you'll see why this invite merits a place in backbyte!!

Contributed by: Cybug Bug-proof, via e-mail

Long lost



siblings?

You know how every person in this world is supposed to have a look alike somewhere else (or some jazz like that!)? Well, the same appears to be true for the Apple iMac as well. See the resemblance?

Your chance to BACKBYTE!

Highlight the lighter side of computing. Mail your contributions to Backbyte
Digit, Plot D-222/2,
TTC Industrial Area, MIDC,
Shirvane, Nerul,
Navi Mumbai 400 706
or send e-mail to
backbyte@jasubhai.com

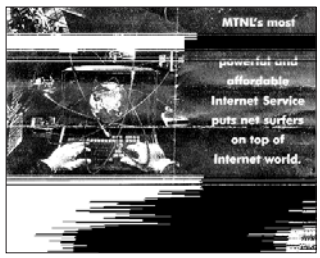
Samsung's sinking!



This advertisement has a number of 'irresistible offers' on display. But have you heard of a 17-inch 'Samsung Sinkmaster? You'll have to be cautious while watching *Titanic* on this one!

Contributed by: Arun

Assured Connectivity?



If you're thinking of getting an Internet connection from MTNL then you would definitely want to think again. The chances of getting connected aren't really all that high! According to this advertisement MTNL offers 9.9 per cent assured connectivity!

Contributed by: Jayesh Bindra, Indore

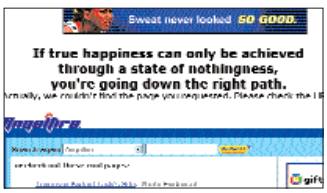
RETRO

Office Suites

The first popular word processor for microcomputers was Electric Pencil written by Michael Shrayer. The same was available in December 1976. Shrayer decided to write the manuals for the programs in the same program itself, and thus the concept of word processing came about. The first electronic spreadsheet written for the personal computer was VisiCalc with the development starting in 1978.

'Page not found' is passe

You know how utterly exasperating it is when you type in a particular URL and come up against a dead end. And that lousy 'Page not found' message doesn't help either! But one of our readers came across a link where, surprisingly, the same message will put a smile on your face!

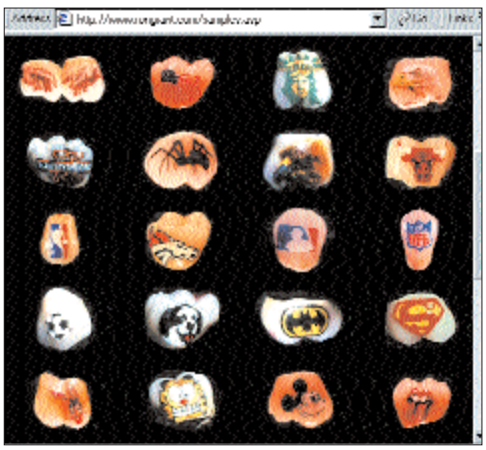


Contributed by: Anubhav Mehrotra, via e-mail

Readers Rants

Designer tooth crowns anyone?

Have you ever wished you had an 'Uncle Scrooge' type of grin, so you could flash a dollar sign everytime you smiled? Well, all praise to the almighty Web, you can even avail of this. Just logon to www.rongrant.com and choose



from dozens of designer samples for tooth crowns which you can have made for you. This should put a sparkle in your smile!

Taken from the Net

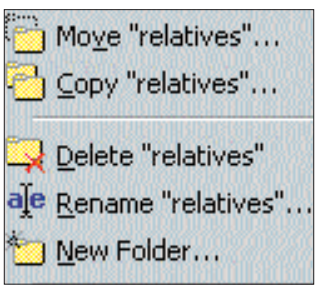
Bandwidth flow!

Exasperated with the current bandwidth speed that you get? Well who isn't! But here's a spoof site we came across that offers a rather novel but extraordinary solution to the problem. You can connect your PC to your water tap for an always-on Internet connection with unlimited access and download speeds. Shocked? Don't be, it's just an April fool's joke. But for more laughs check out www.dutchwater.com.

Taken from the Net

It's all relative

Want to get rid of your troublesome relatives? Well now you don't have to lie your way around them. Here are some really useful options which should solve all your relative problems for good. You can choose from moving your relatives, to deleting them to even renaming them!



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